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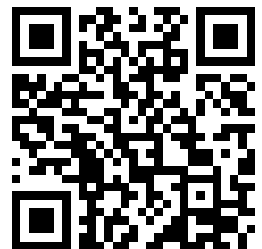
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# The School World

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# The School World

A Monthly Magazine of Educational Work and Progress.

No. 169.

JANUARY, 1913.

SIXPENCE.

## ENGLISH TEXTS FOR SCHOOLS.

By NORMAN L. FRAZER, M.A.

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THERE is nothing more difficult nor, to the teacher of English literature, more fascinating than the selection of English texts for school reading. We all start by making a list of the books children *ought* to read, and it is to be feared that most of us end by prescribing those they *must* read; it is only the happy few who include in their list the books their children *want* to read. But I am sure that we all have in our minds fixed reasonable criteria in our selection for the different ages and stages of development, and if we do not have a very clear idea as to the ultimate goal at which we are aiming, it is possibly because our present system of education is so chaotic that in many schools there is no one definite goal possible at all.

Nor, indeed, is it always quite easy to decide between principles which clamour against one another for recognition; and the most dogmatic theorist among us—who are all dogmatic if not all theorists—has to content himself with a more or less satisfactory compromise. To start with, initial standards are not always so high as we would desire, nor are they uniform. There are so many things that boys of twelve ought to have read that they have not read, even in homes of ease and apparent culture. And, after all, our list is severely limited; if we say a dozen books a year, are we not rather reckless? But even with this unheard of number, we can but select a few examples of types psychologically demanded by the child in his normal development. Nay, the teacher has also certain principles to observe which still further narrow his field.

Suppose, for instance, that the class is in the stage which appreciates the longer lyric; suppose further that he is studying the history of the seventeenth century; that he should consequently read Lycidas rather than the

Ode on the Death of the Duke of Wellington seems certainly desirable. And yet this guidance of correlation is sometimes very misleading, and may produce—indeed, has produced—some very stupid results. Or, again, is there to be no connection in thought between the poetry and the prose being read at the same time? Is there to be any scope for contrast and comparison? Or, in other words, is the beginning of criticism to be regarded as an end of our teaching? We can only say in answer to these and other such questions that the varying needs of schools will require varying selections, and that happily our literature is large enough and varied enough to provide for any conceivable combination of circumstances.

Till a few years ago the external examining bodies, which have been the chief blight on modern English education, controlled almost without opposition the whole of secondary-school reading. How incredibly jejune was the fare they demanded and obtained we all of us blush to remember. A couple of books a year entirely divorced—save by extraordinary hazard—from the needs of the individual schools were used as a peg for every sort of knowledge except the knowledge and love of English literature. The most noticeable reaction came when London University—to which, by the way, teachers owe many an unacknowledged debt—decided to abolish set books altogether from their matriculation examination. Whether now that the needful blow has been struck it is not advisable to make some return to conditions which will at least ensure the reading of some sustained and connected literature rather than of snippets is a question for the University to consider in due course and in the light of experience; but it is, at any rate, worth noticing that Harvard in particular and the American colleges generally seem to have improved upon the London method, for while they set a choice of specially studied texts for their English

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entrance examinations, they demand a school certificate showing that the student has undergone a regular four-year course, and has read a minimum number from a long list of other prescribed books—prescribed, that is, for reading, but not for examination.

Then, about eight years ago, came the Board of Education's suggestions for a four-year course of English literature in secondary schools. It was hailed at the time as a reasonable document, and it is not without interest at the present time to compare not only it, but also some alternative courses drawn up by Mr. J. H. Fowler (*THE SCHOOL WORLD*, November, 1904), with the English Association's new list of some thousand works, a list which is the immediate occasion of the present article.<sup>1</sup> It so happens that the American National Conference on Uniform (College) Entrance Requirements in English has also recently published a list of texts,<sup>2</sup> without, however, undertaking to assign the successive stages at which they are to be read; so that we have plenty of material for comparison.

The criteria proposed by the compilers of the English Association's list can be seen at a glance by merely transcribing the headings. These are:—

Stage I. (age 12-13).—Poems, chiefly narrative; drama; imaginative prose; travel and adventure.

Stage II. (age 13½-15).—Poems, chiefly longer lyrics; drama; imaginative prose; historical prose; essays; descriptive and biographical prose; novels.

Stage III. (age 15-16½).—Poems; drama; prose; novels.

Stage IV. (age 16½-18).—Suggested on broad lines: (i) Recent and contemporary literature; (ii) a group of poets; (iii) a series of poets (epochs); (iv) a single writer; (v) early drama; (vi) literary criticism; (vii) a few individual prose works.

And yet although the general principles here followed leap to the eye and must be approved by all discerning teachers, it is only when the details are examined that we can determine whether the principles have worked out right in practice. For instance, the very first entry in Stage I. is headed "early ballads," but we all know that some very poor ballad stuff has found its way of late into school anthologies. But of the sixteen ballads given here there is not one I would personally exclude, except on the score of a pious hope rather than a reasoned conviction that it had already become bone of the bone of an English child of twelve. In fact, throughout the whole of the poetry in-

cluded in this list there is the same sureness of touch; nothing, or scarcely anything, is wrong. Scarcely anything, I say, for I cannot reconcile myself to "The Prisoner of Chillon" for children of twelve; I have known it bore them too often.

But we all know that it is not the poetry that is the difficulty in drawing up a syllabus of reading; possibly because until comparatively recently prose literature in schools has been restricted to the higher forms. To put it in a more concrete way, I find that every piece of poetry contained in my present syllabus in my own school is contained in the Association's list, but that in the prose works there are several notable omissions, although most of them occur in the earliest stage. And on consideration I find that this divergence is conditioned by a principle, for three of the books concerned deal with national legend and epic.

Certainly the list of "imaginative prose" assigned for Stage I. is very curious. On seeing Arnold's "Legends of Early Rome," we naturally expect to find the classic tales and legends of Greece; and so we do, but not as told by Kingsley in "The Heroes," by Lamb in "The Adventures of Ulysses," nor by Herodotus so inimitably. Nor can a list for English children of twelve which includes "Heroes of Asgard" and excludes "Beowulf" be considered quite satisfactory. Here, in part at least, the American list appears to better advantage; for although it does not demand "Beowulf" or "The English Chronicle," it requires the *Odyssey*, *Iliad*, and *Æneid* "in English translations of recognised literary excellence." While dealing with the prose of Stage I., we would give much to know why, if it is not a mere oversight, Bunyan is represented in the English Association's leaflet by "The Holy War," whereas "The Pilgrim's Progress" finds no place at all.

Under the prose of Stage II. we find much to delight us. Where so much loving labour has been expended in marking out chapters and special essays of voluminous authors, to point out omissions seems niggling ingratitude, but we would gladly have seen included Macaulay's "Third Chapter" and his "Life of Goldsmith," Kinglake's "Eothen," a good deal more De Quincey, a good deal less Boswell, if any at all, and something at least of Prescott. Of the choice of novels it is probably best to say nothing, for few of us bring to our consideration a mind wholly detached from a rather unreasoning personal bias.

In the third stage it is surely only the very exceptional school in which boys of this age could read with profit Dryden's "Essay on Dramatic Poesy," Ruskin's "Lectures on

<sup>1</sup> "English Literature in Schools. A List of Authors and Works for Successive Stages of Study."—English Association Leaflet No. 21, June, 1912.

<sup>2</sup> See *The English Journal* (Chicago), May and September 1912.

Architecture and Painting," or Matthew Arnold's "Essays in Criticism and Celtic Literature." We seem to feel here that the "teaching" members of the committee were overweighted by the scholars and men of letters. On the other hand, there are omissions; to mention but one, so far as we can discover, save for one or two sermons, English oratory is not represented at all in this stage, and only by Burke in Stage IV. It is noteworthy that the American plan gives a special section to oratory among the works assigned to special study.

Stage IV. stands rather by itself; wisely, as we think, "a few suggestions are offered on broad lines." Most of them are excellent; one at least raises an issue of wide interest: the desirability of reading in schools recent and contemporary literature. The question is discussed at length in the September number of the new *Journal of English Studies*, and the conclusion arrived at is sufficiently shown by the writer asking, "Shall we sacrifice any of the lessons that we at present devote to Shakespeare or Milton or Wordsworth to the flute of Mr. Noyes, or the drum and trumpet of Mr. Kipling?" Without entering seriously into the matter here, we are disposed to think that the question, after all, is one of degree. We cannot surely drop the nineteenth century entirely out of our teaching in literature any more than in history, but we shall have enough to occupy us by confining ourselves to its classics without attempting to follow its lesser lights.

But whatever criticisms may be passed upon the details of the leaflet, the broad fact stands out that the English Association deserves the warmest thanks of all teachers of English literature for so comprehensive and valuable a list of works.

#### TEACHERS' CERTIFICATES OF PROFICIENCY.

THE birth of a new examination, even when its parentage is irreproachable, is an event likely to be received with some degree of suspicion. But the objections so often, and so reasonably, urged against the multiplication of examinations for school children do not apply to this newcomer, since the examination is intended primarily for teachers, and no candidate under the age of twenty will be admitted.

The examinations for certificates of proficiency in Modern Languages and Religious Knowledge, to be held for the first time next June, are fathered by the Local Examinations and Lectures Syndicate of the University of Cambridge. There are four specified subjects—

French, German, English, religious knowledge—in any one of which the certificate may be obtained. The examination in religious knowledge is not really a new examination at all, since the papers will be those of Group R of the higher local examination; but the new certificate takes two years to gain, and covers six subjects instead of the four required for a pass in Group R. Moreover, a higher standard has to be reached in each paper.

The examinations in modern languages, on the other hand, are on entirely new lines, and have been devised to meet special needs. Urgent problems have arisen during the present century in connection with the teaching of modern languages. Partly in consequence of increased facilities for international intercourse, partly owing to the modern utilitarian tendency in education, this subject now occupies a far more prominent position in the school curriculum than it did a few years ago. Not only has an increased amount of time been allotted to modern languages, but a complete change has been made in the manner of teaching them. The introduction of the "direct method" has revealed very clearly the inadequacy of the old formal grammar and translation lessons, which were often given by teachers with little or no command of the spoken language. There is consequently not only an increased demand for teachers of modern languages, but the demand is now for teachers who can speak the language which they profess to teach.

One problem which presents itself, then, is how to secure a supply of teachers, other than specialists, possessing the essential qualification of ability to speak the language which they are to teach. While it is desirable that the organisation of the modern language teaching in a school should be in the hands of a specialist with high academic qualifications, it is not always practicable; and, in any case, it may often be found necessary that a certain amount of the teaching should be given by a member of the staff who does not possess an honours degree in modern languages. Such a teacher must have a colloquial command of the language, if his teaching is to meet with any degree of success, and this implies a period of residence abroad. A working knowledge of phonetics is also a valuable asset. Facilities for residence abroad already exist; but the problem of a "hall-mark" for the non-specialist teacher is a very real difficulty.

It was at the instance of the Modern Language Association that the Cambridge authorities sought to find a solution of the difficulty and devised the new examinations for certificates of proficiency. There is in this country no other examination test of the kind

required, except a similar certificate offered by the Senate of the University of London. These certificates will afford a guarantee of the teacher's practical knowledge. The Cambridge examinations include a searching oral test, as well as a paper on phonetics. Translation and essay-writing, together with a voluntary literature paper, complete the test. Two essays will be set for the French and German examinations, one in English and one in the foreign language; and, as the subjects for the English essay will relate to French (or German) literature, history and institutions, some acquaintance with these is desirable, even though the literature paper itself is not compulsory.

Some period of residence abroad would seem to be a necessary part of the preparation required for the examinations in French and German. There are several ways open to a teacher who wishes to go, for instance, to France to study the language. He may go for a year (under the Board of Education scheme inaugurated in 1905) as "Assistant" in a French school; or, if he cannot afford to spend so long a period abroad, there are the holiday courses arranged by the Teachers' Guild of which he may avail himself; or he may attend the special classes in Paris organised by the *Guilde Internationale* for the benefit of foreigners who desire afterwards to teach French in their own country. Any one of these courses might be utilised in preparation for a certificate of proficiency.

Among classes which offer special preparation for the new examinations may be mentioned those of the *International Guild*, of which a branch has recently been opened in London at Gordon Hall; the subjects of instruction include phonetics, translation, essay-writing and literature. Students desiring to shorten, or dispense with, residence abroad might be glad to enter for these classes; and, as the Guild caters for French and German students, as well as English, it should not be difficult for students of different nationalities to arrange for mutual conversation practice. Courses of preparation (thirty-two or twenty lessons), specially designed to meet the requirements of these examinations, are also offered by the *University Examination Postal Institution*.

One of the difficulties which the private student is likely to meet with in preparing for a new examination is to find suitable textbooks. The following suggestions may be of use, but of course the list of books given is by no means exhaustive. The following can be recommended for French: L. Sudre's "Grammaire"; Darmesteter's "Grammaire Historique"; Victor Duruy's "Histoire de France" (two vols.), which is an extremely good book;

Ducoudray's "Leçons Complètes d'Histoire de France," a useful book for less advanced students; Rambaud's "Petite Histoire de la Civilisation française," which gives an excellent summary of institutions. There are good books on the history of literature by G. Pellissier, Crouzet, Lanson (for advanced students), Faguet, and René Canat (*La Littérature française par les textes*). A good book for phonetics is Dumville's "French Pronunciation and Diction," and there is a "Petite Phonétique Comparée," by Passy. There is also a useful little card on "French Sounds," by H. J. Purkiss, published by Hachette, price 3d.

For German the following may be found useful: Kluge's "Geschichte der deutschen National-Litteratur"; Scherer's "Geschichte der deutschen Litteratur"; Vilmar's "Geschichte der deutschen Litteratur"; and some of the little books in the *Sammlung Göschen* series (10d. each), namely, "Geschichte der deutschen Litteratur," by Max Koch; "Litteratur der Klassikerzeit"; "Litteratur des 19ten Jahrhunderts" (two vols.); "Kurzer Leitfaden der deutschen Dichtung." For phonetics, there are: Viëtor's "German Pronunciation," and his "Kleine Phonetik der Deut., Engl. und Fr."; Sievers's "Grundzüge der Phonetik"; Trautmann's "Kleine Lautlehre des Deutschen, Fr. und Eng."; Jespersen's "Elementarbuch der Phonetik," and his "Lehrbuch der Phonetik."

For English phonetics, there are: Rippmann's "Sounds of Spoken English"; Sweet's "Sounds of Spoken English," and his "Primer of Phonetics."

The certificate of proficiency in English has been designed specially to meet the needs of foreign students who come over to this country for the purpose of acquiring the language with a view to teach it afterwards in their own country. Hitherto, such foreign students have found themselves at a disadvantage, since there was no suitable examination test which they could undergo and point to as a proof of their practical knowledge of the language. This difficulty has now been removed; and the certificate of proficiency in English will give them the sort of guarantee which they require. English students are not precluded from entering for this examination, though it was specially devised for the benefit of foreigners. Special classes have been arranged in preparation for the English examination by the London branch of the *International Guild*.

The new examinations should prove valuable in several directions; and, by increasing the available supply of efficient teachers, should tend to raise still higher the level of modern language teaching in our schools. The fact that a certificate of proficiency in French or

German will count as equivalent to a first class in Group B may attract students who wish to obtain the higher local certificate. English and foreign teachers alike will welcome the opportunity, which the certificates of proficiency will afford, of obtaining tangible proof of their practical knowledge of the language which they wish to teach; and those who desire some sort of "hall-mark" will be encouraged to qualify on sound lines, and especially to acquire that mastery of the spoken language which is essential for successful teaching. The value of the certificate of proficiency as evidence of a teacher's knowledge of his subject will increase as the examination becomes known and its standard appreciated by heads and governing bodies of schools.

#### THE STATE LEAVING CERTIFICATE OF SCOTTISH SCHOOLS, WITH SPECIAL REFERENCE TO THE QUALIFYING EXAMINATION OF THE PRIMARY STAGE.<sup>1</sup>

By D. MACGILLIVRAY, M.A.

Headmaster of the Hillhead High School, Glasgow.

**T**HE State system of leaving certificates in Scotland has now been long enough in existence to be considered as beyond the experimental stage. Introduced into the higher class schools in 1888, it was soon extended, in accordance with Scottish traditions, to all public schools doing higher work. If time permitted it would be highly interesting to trace the history of its development and extension to various types of schools, and the modifications in its character and conditions that have resulted from the growing enlightenment of educational opinion. Here it is only fair to recognise that the State, through its Education Department, has been singularly responsive to that enlightenment, and, where it has not led, has never been far behind.

At the outset the system differed fundamentally from the German conception of leaving certificates. Certificates were awarded on the results of a purely external examination, although an endeavour was made, though not very successfully, to keep in touch with schools by means of visits of inspection. These certificates were granted, not for success in specified groups of subjects, nor for the satisfactory completion of an approved school course, but for passes in the separate subjects of higher instruction. In this way pupils could boast of being in possession of four, five, and six leaving certificates. All this has now been changed, and the German model is followed closely in all respects, save that the teachers

have no choice in selecting the questions to be set at the written examinations.

I propose to confine my attention to the qualifying examination, which, although no actual certificate is issued, may be regarded as the leaving certificate examination of the primary as distinct from the elementary school.

In the educational system of Scotland, more perhaps than in any other, the primary school has been made the foundation of the whole educational fabric. This, it seems to me, is a necessary condition in any system that would seek to give equality of opportunity to all citizens. For this purpose the education given therein should not be regarded as an end in itself, but rather as the first stage in an extended course that may be pursued according to the tastes, aptitudes and circumstances of pupils, in continuation and supplementary classes, in intermediate and secondary schools, or in technical colleges and universities. Joining the primary school to all these, there should be, not ladders as in the once popular conception, but broad avenues that all may traverse who have the ability and the desire to do so.

Such a system, well organised and carefully articulated, we now claim to have in Scotland. In this system the qualifying examination plays a most important part. To understand this, a few words of explanation are required in regard to the types of Scottish schools.

There are, as explained in the official description by the Department, three distinct types of schools, all resting on a common foundation but crowned with different superstructures. This common foundation is the primary grade, ending about the age of twelve, with such a knowledge of the fundamentals as the qualifying certificate is meant to guarantee. A reference to the diagrammatic sketch will make the position clear. Each of the three types of school, the elementary, higher grade and higher class, are seen to have in common a primary grade with infant, junior and senior departments. Out of this grade there is no royal road. All pupils, whatever their social circumstances and whatever their ultimate scholastic goal, have to pass through the wicket-gate of the qualifying examination. The qualifying examination is thus the pivot upon which all the superstructures of further education rest. A pupil, on passing this examination, is free to choose between the supplementary courses of the elementary school and the intermediate courses of the higher grade and higher class school. The bulk of the pupils of the elementary school pass into the supplementary courses, in which practical work plays an important part. The majority of pupils from the primary grades of

<sup>1</sup> Paper read before the Educational Science Section of the British Association at Dundee, September, 1912.

the higher grade and higher class schools pass into the intermediate courses of their own schools, but there is a good deal of transference and cross-fertilisation between the various types. The elementary schools in particular supply a large percentage of earnest and able pupils to the higher grade schools, while others proceed by means of scholarships to the higher class schools.

When the examination thus plays so dominant a part in the educational economy, the nature of the test and the method of conducting it become of supreme importance. There is no age limit for presentation, but the normal age is fixed at 12, although many pupils pass at 11, and a few at 10 years of age. The higher grants in the succeeding

courses are paid only on pupils above twelve. Those younger, though sitting on the same benches and receiving the same instruction, are paid for at a greatly reduced rate, presumably as a penalty for their unnatural precocity. Gilbertian as this proceeding may seem, I am not disposed to quarrel with it. It withdraws from teachers the temptation to rush and hustle their pupils through

the primary grade, a temptation to which the eagerness and keenness of Scottish schoolmasters render them peculiarly liable.

The requirements for the examination defined in the broadest terms are ability to read, write, speak and understand plain English, to perform simple calculations and to write to dictation with good spelling and legible handwriting a simple narrative passage. The limits of the various subjects are thus only broadly indicated, and there is no prescribed work of any kind.

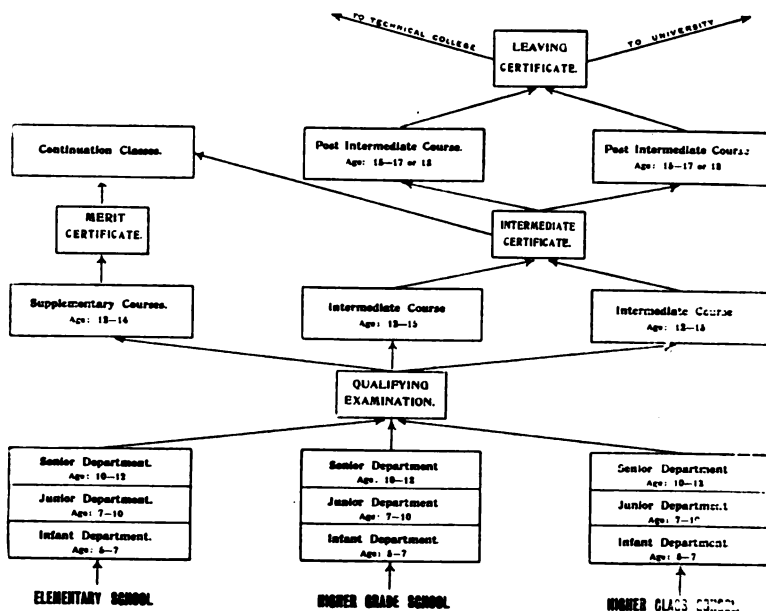
The examination is conducted by an external examiner, the school inspector of the district, but the teacher's verdict is the chief factor in determining success or failure in each case. It is he who puts forward the pupils whom he

thinks qualified. He records on forms supplied for the purpose his estimate of the relative value of each pupil's work in the main subjects of the course. In support of this opinion he files the written exercises and examination tests of the pupils throughout the year. The inspector, on the occasion of his visit, tests the teacher's assessment by a scrutiny of the exercises and worked papers, or by such control examination as he may think necessary. Should he find that the selection of candidates has been improperly or carelessly made, or that discrepancies between the results of the control examination and the teacher's estimate cannot be reasonably explained, he is authorised to reject any or all of the candidates. In actual practice it is found that the teacher's judgment

has rarely to be challenged, and the presentations made by him are usually accepted *en bloc*.

In connection with the character of the examinations and the purposes they are meant to serve, several interesting questions at once suggest themselves. Is it good policy to set up the same examination for pupils going forward to courses terminating at 14 years of age, and for those

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who will remain at school till 16 or 18 years of age? The examinations being the same, will not the courses of study leading up to them tend to be the same, and will not this prevent a preparation for secondary education being begun at the proper time? This is an element of weakness in our system. But in the actual working of our schools, this weakness is more apparent than real. In the higher grade and higher class schools it is possible from the outset to direct the primary course of study on lines that will prepare pupils for higher instruction. Teachers have the utmost freedom in framing their courses. The qualifying examination represents a minimum qualification, not a maximum one. As a matter of fact, some higher grade schools and almost all



higher class schools begin the study of a foreign language and the study of formal grammar at the primary stage. But what of the pupil who comes up from the elementary school? He has no foreign language and no real knowledge of grammar. How is he to fit into the regular course, and how is he to make good the handicap with which he starts? This is a difficulty for which many solutions have been offered. It has been suggested that selected pupils in the primary grade of the elementary school should make a beginning of language study there at 10 years of age. But apart from the difficulty of determining at this age what pupils have the capacity and talent for such study, it is to be feared that teachers with the requisite knowledge of foreign languages are not always to be found in elementary schools. Another proposal favours the adoption of the German system, whereby the transfer to secondary education is made at 9 or 10 years of age. This system would be quite impossible in the country districts where pupils have to travel long distances to central schools. It is a hardship to do so at 12 years of age. It would be cruelty to ask for it at 9 or 10. The only method that I have found to meet the case of these pupils is to set up special classes for them, although this means inconvenience and dislocation of time-tables.

Another question that arises is this: Does success at the qualifying examination necessarily testify to fitness for pursuing a course of higher education. Frankly it does not. In that case it may be asked: Have not the higher grade and higher class schools in their upper departments a considerable number of pupils unfit to profit by the instruction? To that I would reply in Scottish fashion by asking if it is not the case that in all secondary schools, from the great public schools of England downward, a considerable percentage are not really fitted for higher education in any form. In any case the wastage from incompetents is not nearly so serious as the wastage among the competent who leave before the end of the course.

In conclusion, it may safely be affirmed, the guiding, stimulating influence of the leaving certificate system has been a powerful factor in the educational advance of the past few years. This system, more than anything else, has helped to bring harmony, unity and order out of the chaos that for many years marked our educational organisation.

*Songs of the Golden Days.* By Alicia A. Needham. (McDougall.) 2s. net.—This is a collection of nursery poems set to music by the composer of "Husheen." The collection has been chosen carefully, and the melodies are exquisitely appropriate and most pleasingly harmonised.

**"CRAMMING" FOR CIVIL SERVICE EXAMINATIONS.**

IN an article entitled "The State, the School, and the Civil Service," published in THE SCHOOL WORLD last August (Vol. 14, p. 289), Mr. D. P. Coulton held that "pupils leave the State's secondary schools in order to qualify to pass the State's examinations," and pleaded for more co-operation between the Board of Education and the Civil Service Commissioners, so that the examination requirements of the latter might be based upon the curriculum approved by the former.

The following facts show, however, that in the second division examination most of the candidates are prepared in secondary schools.

From returns made by candidates for the second division examination of 1911, it appears that more than half of them undergo some kind of special preparation for the examination. Much of this special preparation, however, is accounted for by boys who are already in employment and have only the evening for study, and for whose needs little is done by the schools; and the really interesting question is to what extent candidates who give their whole time to instruction attend places of special preparation.

Of the 1,098 candidates examined in the second division competition of 1911 who gave their whole day to study, the number who transferred to places of special preparation

	between the ages of 14 and 15	was 10
"	"	15 " " 48
"	"	16 " 17 " 151
"	"	17 " 20 " 218

Thus of the candidates who gave their whole time to study 427, or 39 per cent., were at some time in places of special preparation, and 671, or 61 per cent., were all the time in schools; the average duration of special preparation being 14 months. Up to the age of 17, the lower limit of age for entering for the examination, only 209, or 19 per cent., had undergone special preparation.

This last statement, which provides the best test of the degree to which the examination and the school instruction conform to the same ideals, is given country by country in the following table:

*Second Division Examination of 1911.*

(1)	(2) Number of candidates from each country who gave their whole day to study up to the age of 17	(3) Number from each country who had undergone whole-time special preparation before the age of 17	(4) Number in Column 3 as percentage of number in Column 2
England	707	112	16
Scotland	174	55	32
Ireland	167	35	21
Wales	50	7	14
Total (United Kingdom)	1098	209	19

## THE TEACHING OF SCHOLARSHIP MATHEMATICS IN SECONDARY SCHOOLS.<sup>1</sup>

By WILLIAM P. MILNE, M.A., D.Sc.  
Clifton College, Bristol.

IN passing in review the changes that have taken place in the teaching of mathematics throughout the country during the last ten or twenty years, one has to consider not only the instruction given to the rank and file of mathematical pupils, but also that given to those of higher endowments, inasmuch as for a nation's educational efficiency it is essential to train carefully the average person and to train equally carefully the expert. It is found that at the present moment most of the best pedagogic thought of the country is being directed towards rendering mathematics at once useful and educative to the pupil of average attainments, while very little is being done in the schools for those who are being definitely trained in the more advanced branches.

It is here maintained that most of the methods discovered and applied with such conspicuous success to the teaching of elementary mathematics can be extended in scope and modified in application so as to improve the teaching of the higher mathematics, and bring a larger proportion of the more difficult branches of the subject within the powers of comprehension of the more advanced pupils than is at present possible. The published views of such distinguished teachers as Chrystal, Hobson, and Hill support this hypothesis.

Thus Prof. Chrystal says in the introduction to his algebra :

The first object I have set before me is to develop algebra as a science, and thereby to increase its usefulness as an educational discipline. I have also endeavoured so to lay the foundations that nothing shall have to be unlearned and as little as possible added when the student comes to the higher parts of the subject. The neglect of this consideration I have found to be one of the most important of the many defects of the English text-books hitherto in vogue.

He also concludes his preface with the following eloquent appeal :

In taking leave of this work, which has occupied most of the spare time of five somewhat busy years, I may be allowed to express the hope that it will do a little in a cause that I have much at heart, namely, the advancement of mathematical learning among English-speaking students of the rising generation. It is for them that I have worked, remembering the

scarcity of aids when I was myself a student; and it is in their profit that I shall look for my reward.

Again, Prof. Hobson, while president of the Mathematical Association, said :

I am inclined to think this aspect of mathematics has been unduly pushed backwards by the extreme reaction we have had against the purely abstract teaching of older days. There is a danger of the pendulum swinging too far the other way. I think a good deal of time would be used with more advantage in a real effort to understand what  $\sqrt{2}$  means than in an undue amount of the kind of practical work which is done nowadays.

Again he remarks :

We have heard a good deal of the difficulties about  $e$ . I quite agree that they are such that it ought to be banished from the elementary course for the ordinary student, but those who do find it necessary to consider  $e$  and the exponential theorem should, I think, study a proper proof of that theorem. I do not say that they should remember the proof of it and be able to write it out. That is quite another matter. I do not think it is in the least necessary that boys should be able to sit down and write out a really good proof of that theorem. That is one of the artificial things which have been imposed upon us by examiners. I do think that at some time or another he should understand the proper proof, and, by seeing the working at every step, understand how that proof is arrived at. He has then done it once for all, because he knows how it is obtained. It does not mean that it should become a burden on the memory, but simply that he has obtained certain knowledge and knows how to make use of it.

I have not quoted these pronouncements to raise a discussion of the views expressed therein, but to show clearly that many of the greatest investigators and teachers are interesting themselves not only in the discovery of new mathematical truths but also in how these truths, when discovered, can be taught most effectively to the general body of mathematical students.

Having said so much by way of introduction, I shall now define more precisely the limits of our inquiry. Owing to the ample staffing of many of our great secondary schools, a clever boy who shows special aptitude in any particular branch of study can be separated to a certain extent from his less talented fellows, and carried forward in that subject by his teacher at his own pace. The result is that he can obtain a considerable knowledge and expertness in his subject. This is tested by the university authorities, and if he be deemed sufficiently good he is awarded a scholarship. Hence arises the name "scholarship boy," and "scholarship mathematics." We wish to consider here to what extent, if any, it is possible to improve the teaching of

<sup>1</sup> A paper read before the Educational Science Section of the British Association at Dundee, September, 1912, under the general title of "The Present Position of Mathematical Teaching."

scholarship candidates. I do not mean by this statement that we wish to study and devise more efficient methods of scholarship-grabbing. The term "scholarship candidate" is a convenient name understood by all teachers. The scholarship candidate is learning a well-defined schedule of mathematical knowledge with sufficiently elastic boundaries to permit of reasonable liberty in the instruction given. How can we improve our teaching of this schedule viewed as an educational instrument?

The subjects laid down in this schedule are: geometry, algebra, trigonometry, statics, dynamics, differential calculus. Historically, the change that has come over the papers set by the colleges of the universities to test the relative merits of the candidates is of importance in the present discussion. The teachers of an older generation had to cultivate above all things the manipulative faculty of their pupils. Long, involved identities in algebra and trigonometry, complicated questions in conics (called by the irreverent Cantabrigians "Three-deckers"), were the order of the day. Little attention was paid to the fundamental ideas underlying a subject, and the problems set in mechanics were too often of a purely artificial character, devised to test, first and foremost, the candidate's power in the manipulation of symbols. All that has now changed. The Toasting-fork, which was used for every mechanical purpose under the sun except that of toasting, has disappeared from the examination hall. The man with the perfectly spherical head who was always trying experiments with his perfectly conical hat to see how high he could wear it before his skull gave way and cracked now sleeps with his fathers. The perfectly rough, perfectly inelastic, homogeneous worm which spent its days and nights in crawling about through a tube in the form of an equiangular spiral is now embalmed in some academic museum.

Instead of papers set requiring a knowledge of the habits and environment of these romantic beings, our pupils are now called upon to show that they possess a wider knowledge of the subject, adequate, but not excessive, manipulative faculty, and ability to write essays on the subject from a philosophical, or at all events reflective, point of view. Now probably most authorities who have had the opportunity of observing on a large scale the work of the scholarship candidates sent up from the secondary schools would agree that they possess a very efficient knowledge of straightforward manipulative algebra and trigonometry; considerable facility in solving problems in modern geometry and geometrical conics; good power in working questions on

analytical conics; and adequate ability to solve the stock types of questions set on mechanics.

We shall now consider some of the aspects in which our teaching seems distinctly weak, and the reasons therefor.

(1) No systematic effort has ever been made by secondary-school teachers carefully to scrutinise the schedule of knowledge required of scholarship candidates, and to discover what can best be omitted and what can advantageously be added.

(2) The subject has left the stage when it is easily within the teacher's grasp, without any private study. Owing to the length and stress of his official routine, very little time is left him to keep abreast of the latest developments of the subject as it leaves the hands of the great masters and investigators. The knowledge dispensed is therefore frequently archaic, and inferior methods are taught long after better have been discovered.

(3) Owing to the labour of preparation and the small pecuniary returns, text-books covering the ground of the scholarship work are rarely published, and continue to be used when long out of date.

(4) Detailed discussions as to the best methods of teaching such difficult subjects as limits, virtual work, homography and involution have never been carried out.

We shall now give one or two concrete instances illustrative of the application of the above principles in practical teaching. One of the first subjects in higher Algebra which a boy has to tackle is permutations and combinations, and he usually finds it one of the most difficult. Would he not grasp the subject more readily and more firmly if instead of making him *calculate* continually the *number* of permutations or combinations under given conditions we gave him more practice in *tabulating* the actual arrangement or selections and seeing that he has left out none of the possible cases? He would thus acquire some preliminary insight into actual cases of permutations or combinations, and hence be better able to appreciate the analytical precautions and artifices adopted to insure that no cases be omitted.

Again, consider diophantine equations. This is usually found a very dull subject by the scholarship boy, and it takes little hold on his imagination. He leaves the subject with dim recollections of an unnatural number of "ifs" and "therefores"; "if two numbers be both positive" something happens, while "if two numbers be both negative" something else happens. At all events the subject is usually presented in a form repulsive to him, and he finds great difficulty in recalling the

reasoning. Now the use of graphs removes these difficulties at once. The different conditions imposed upon the letters involved present themselves naturally, and what was a dull subject becomes an interesting lesson, the details of which the pupil can work out at pleasure.

Take again the subject of limits. Very many books give the formal definition (or postulate) of a limit without any preliminary discussion. Thus one book opens the subject in the following way:

"In the case of the sequence of numbers  $x_1, x_2, x_3, \dots, x_n, \dots$  there corresponds a natural number  $n'$  such that the inequality  $n > n'$  necessitates the inequality  $|x_n - a| < \alpha$ ,  $\alpha$  being a determinate number.  $x_n$  has as its limit  $\alpha$ , when the natural number  $n$  increases indefinitely."

Now it is tolerably certain that this enunciation of a fundamental principle would leave 75 per cent. of our scholarship boys absolutely at sea. It would appear to them artificial and remote from common usages and experiences. If, on the other hand, such a definition were synthesised by examples drawn from the class's ordinary dealings with decimal approximations, what is usually found so insurmountable by such a large number of pupils would probably be found quite natural, and therefore fairly easy. A most excellent synthesis of the usual definition of a limit is to be found in Tannery's Arithmetic—a book too seldom seen in the hands of English-speaking students.

Furthermore, let us take another familiar stumbling-block of our own student days, Taylor's Theorem. One remembers how every lecturer warned us that the usual proofs given in most of the text-books of the day were either inadequate or wrong. We did not know then that we had not gone through a sufficient training in the ideas of modern analysis to be able to comprehend a rigorous proof, even had it been presented to us. The result was that we knew there was a weak spot in the reasoning, but we could never locate it, and consequently the feelings with which we approached Taylor's Theorem were those which a detective must feel who has to investigate a suspected infernal machine. We felt that our duty required us to handle the dreaded instrument, but we never knew the moment when we might be hurled to destruction.

Finally, many students in looking back upon their study of solid geometry have only a dim recollection of complicated formulæ for direction cosines, lengths of lines and conditions of perpendicularity. The various kinds of quadric surfaces were somehow muddled up with confused recollections of stately determi-

nants. Now the earlier introduction of the notion of the plane at infinity would dispense with half the formulæ that cumber the brain, and would give clearer vision to the learner.

So one might go on multiplying instances, but enough has been said to show that much requires to be done. That already a start has been made is evident from many considerations. Dr. Charles Davison, of Birmingham, published a very interesting and suggestive paper in THE SCHOOL WORLD of last June on mathematical essays, historically and pedagogically treated. There has been published from America recently a book of "Mathematical Monographs," in which busy schoolmasters can find succinct and lucid discussions from a philosophical point of view of the subjects they have to deal with in teaching scholarship work. If we open the last number of *The Mathematical Gazette* we find an article on "The Theory of Proportion," by Prof. Hill, in which he says: "I have taken a definite portion of the curriculum, which has been regarded hitherto as the exclusive possession of the mathematical aristocracy, and I propose to throw it open to the mathematical democracy." Again we have every reason for optimism. A scholar with a brilliant classical degree had studied under the old *régime* in the Scottish universities when the curriculum was fixed. He had to take mathematics, for which he had little natural taste, and his *bête noire* was the "Integral Calculus." "I could make something of everything in mathematics," he said to me, "till I came to these blessed fiddle-back things." Needless to say he referred to the signs of integration. Now I venture to think that if he had been taught the calculus by the methods in vogue in the secondary schools of the present day, he would have found it both a useful and an interesting subject of study.

The problem of teaching scholarship mathematics as opposed to elementary mathematics is simplified by the fact that the pupils are older in years, and specially selected for their ability in the subject. On the other hand the stage has been reached when the teaching becomes antiquated if the results discovered by the great masters and investigators are not known by the teacher. Now most teachers are placed out of reach of the great libraries containing the mathematical journals, and, furthermore, the length of their official routines and the oppression of multifarious duties prevent them from devoting much time, if any, to the work being done by the original investigators. The question therefore arises, "How shall such knowledge be wrested from the mouldering shelves of libraries and placed in the hands of the active teacher?" Again,

how shall a good method of teaching any given subject devised by some teacher be promulgated as speedily as possible among his fellows? The following difficulty in this connection has to be realised and faced. A man's powers are limited. The same person may be an excellent teacher of mechanics and a very indifferent teacher of geometry, or *vice versâ*. What has to happen in general is that the good teacher of mechanics gives excellent instruction on mechanics out of his own inherent capacity, but he has to depend on the methods devised by born teachers of geometry if he is to give good instruction in that subject. There is no getting away from the fact that every man, owing to his limited powers, *teaches* some subjects but *administers* others.

In order, therefore, to improve the teaching of higher mathematics in our secondary schools we must apply the same methods, extended in scope and modified in plan, which have proved so successful in the case of the elementary portions of the subject. Every year a holiday course of lectures on the teaching of elementary mathematics is delivered at St. Andrews by some outstanding teacher. Why should not some outstanding teacher deliver a similar course on the teaching of some branch of scholarship mathematics every year? In this way, by increased facilities for the discussion and propagation of methods of teaching, must we hope for a much-needed improvement in our instruction. Here, then, is a rich field for pedagogic inquiry. Little has as yet been done, but much can be done.

### THE TEACHING OF GEOMETRY.<sup>1</sup>

By W. D. EGGAR, M.A.  
Eton College.

I WAS recently asked by a friend, not in my profession, "What is this new way of teaching mathematics? Is there any real change? I thought that mathematics were universal and immutable." As usually happens, I was not ready with an answer. I began to wish for more knowledge of the works of Mr. Bertrand Russell and the foundations of mathematical belief, when another friend answered for me, "Why, don't you know? They have abolished Euclid. Euclid is as dead as a doornail." He should have said "As dead as mutton," for Euclid was undoubtedly at one time living matter. I was distressed.

Having been a member of the committee appointed at Glasgow by this Association eleven years ago, I felt much as if, after a blank day, my too candid friend had said that

at least I had shot the retriever. It is, of course, absurd that I should have any guilty feelings. I was very fond of the old dog. Many marks had he scored for me in the old days before I really understood him. Besides, there are lots of other dogs, too many, some say. Again, is the old dog really dead? At least I could make inquiries. I have made some inquiries, not exhaustive by any means; but I have asked a few people likely to be brought into contact with the better products of our teaching at schools.

A distinguished professor of engineering, who has a large experience of students, tells me that he regrets the demise of Euclid, and that he finds the present-day student less capable of grappling with a geometrical difficulty than was his predecessor brought up on Euclid.

A Cambridge Don writes:

So far as my opinion goes, the average student is not so capable of dealing with problems in Pure Geometry as of old, on account of the tendency of the schools to shelve that subject and to lay greater stress on the analytical methods. For instance, in our Open Scholarship Examination, chiefly owing to representations by schoolmasters, no question in the Geometry paper is restricted to be done by purely geometrical methods, so that we find that the bulk of the work sent up by many candidates in answering that paper is analytical. I should think that modern students do not as a rule get sufficient practice in the methods of Pure Geometry.

Then, speaking of engineering students who take Part I. of the new Mathematical Tripos at the end of their first year, he says:

We tried sending in three last June. The Pure Geometry of the first of these was quite fair, and he came out in the first class. The other two passed, pretty easily I should think, in the third class. The Pure Geometry of the two latter was by far their weakest subject, with the possible exception of Electrostatics; and, of course, they knew no Geometrical Conics and had no time in which to learn any with good effect, and did not spend long over it, because it does not pay. As to the weakest of weaklings—these as a rule are much less capable than of old of writing out a proposition of Euclid or its modern equivalent—some of them do not seem to know what a proof is or means; and in the sequence of propositions which they profess to have learnt, closed circles are often discoverable. A is proved by B, B by C, and C by A. The practical work no doubt renders the subject much more interesting to men of this class, but it may be overdone at the expense of the theoretical work.

My last witness is a schoolmaster who has had as long and as wide an experience of boys with mathematical ability as any living man. There can be no question of his excellence as a teacher, and there can be very little doubt as to his views. He says:

<sup>1</sup> A paper read before the Educational Science Section of the British Association at Dundee, September, 1912.

I regard Arithmetic, Algebra, Geometry as three tools each with its special uses, and think that to mix any two or all three, before a pupil has learnt to use each one fairly well, and particularly in order to avoid difficulties which, when surmounted, possibly render the tool a much more efficacious implement in the user's hands, is not wisdom.

I object to  $\alpha$  in arithmetical questions, but deferring to Cambridge authority, I feel bound to accept it when examining.

Algebraical proofs of Euclid's Second Book I utterly abhor; new methods of tangency, a multitude of sequences, with a plethora of very mild text-books, edited by persons distinguished or otherwise, are my abomination. I speak as an examiner for various authorities since 1884. Those who banded themselves together to improve the teaching of Geometry have produced chaos. One looks in vain for improvement, one can easily find the opposite. Of course, the teacher who wishes to lead a less strenuous life can keep the hands of the average dull boy employed in measuring lines, &c., *ad infinitum*, and perchance guided by Carlyle's remark about English folk as a whole, and catering accordingly, can make the intellectual boy utterly disgusted. What are old or new methods depends upon the instructor. The heuristic method may be described "as old as the hills." Some preliminary practical work was probably adopted by many teachers. I did in 1868, 9, 70 . . . I enunciated a few propositions to my pupils and got them accustomed to applications before the introduction of formal proofs, but I did not go shouting to the world at large how wonderful were the discoveries I had made. Of course, one often used a graph as an illustration, but over graphs much time can be, and I think is, wasted. Moreover, the specimens one gets as an examiner are sorry sights. "Power" is of much more importance than "knowledge," and it may be there is a tendency to make the learner's path too smooth.

Finally, I might refer to a correspondence which appeared in THE SCHOOL WORLD in April and May of this year on the question of sequence in geometry, started by Prof. Bryan from the examiner's point of view. The answers which he elicited were of the most varying nature. (They have been analysed and summed up very ably by Dr. Charles Davison in the September, 1912, number of THE SCHOOL WORLD.) The two extreme views seem to be (a) that Euclid should be restored; (b) that it is highly desirable that there should be no recognised sequence.

From all these conflicting opinions and statements two definite facts emerge. I. It is very difficult to examine in geometry on the lines of the old-fashioned Euclid paper. If you try to do this you must be prepared to accept almost anything in the way of a proof. II. The better students are suffering in many cases from a certain want of rigidity in geometrical methods.

At once the question arises: "Ought we to

recognise two distinct classes of students of mathematics, and treat them differently from the beginning?" I think not. There is a large consensus of opinion that all boys should be kept together as much as possible up to the stage of the School Leaving Certificate Examination; and though there may be considerable difference of opinion as to the subjects of that examination, everybody is agreed<sup>2</sup> in including mathematics. How much geometry should be compulsory in this examination?

One of the recommendations of our Glasgow committee was that something more than a knowledge of bookwork should be required for a pass in any geometry examination. I have looked at many recent geometry papers in examinations, such as Oxford Local, Cambridge Local, Joint Board, London Matriculation, and I find that all of them consist mostly of bookwork combined with easy practical geometry. There are various methods of giving a touch of modernity to the bookwork. One is to use unusual letters of the alphabet. Thus, instead of setting "The greater side of a triangle has the greater angle opposite," we have "If KLM be a triangle having KL greater than KM, prove  $\angle KML > \angle KLM$ ." Another way is to set new propositions, such as the one about two sides and an angle not included, which you will find in the new text-books; or again—"The straight line joining the middle points of the sides of a triangle is parallel to the third side." To set this is to ask for trouble.

The Cambridge Local Preliminary (for children under 14) gives a number of easy constructions and Euclid I. 17, 33, 37, III. 14, 31, and no child who knows his bookwork and can do easy geometrical drawing could fail to pass. (You can scarcely expect children under fourteen to do hard riders; but why have examinations for children of this age?)

Instead of it being harder to pass in geometry than of old it is easier, for the following reasons: (i) the number of propositions is limited both by schedule and by the anxiety of examiners to avoid doubtful proofs; (ii) the necessity of admitting any proof which may perhaps come from some text-book or other; (iii) the inclusion of geometrical drawing, and the mistaken idea that a correct piece of practical construction is as good as a rider. What is the use of a question of this kind taken from a School Certificate paper? "Describe a triangle whose sides are 2'6, 2'8, and 3 in. respectively. Measure the greatest angle."

Surely the only way of carrying out the B.A. committee's recommendation is to abolish bookwork altogether. The Civil Ser-

<sup>2</sup> An objection was raised to this assertion.

vice Commission has done this for some years in its Army examinations, with more effect on the teaching in public school army classes than all the pious opinions and schedules of all the associations and committees. Other examiners appear to think it necessary, if they set a rider, to set as well the proposition on which it depends. Why should this be necessary? Speaking as a teacher of physics I want my pupils to be able to apply I. 47, III. 21, 35, &c., and I can easily set questions testing their knowledge of the enunciations of these propositions and their power of using them. I never want to discover whether or not they can prove these propositions. But I often wish that I could allude to these propositions by Euclid's numbers, and it is a convenience to be able to do so in an assembly such as this. Will it be possible to do so in, say, twenty years' time? I hope so. I should like Euclid himself to form part of a mathematical scholar's equipment. If Euclid goes, surely there ought to be some authorised book to which reference can be made. Boys remember numbers easily enough, and I. 47 is no harder to remember than how to spell Pythagoras.

As to the teacher being fettered by the existence of a standard sequence, this can scarcely be taken more seriously than the statement that the teacher of arithmetic is fettered by the existence of the multiplication table. I might quote from our President's "Evolution of Educational Theory." "There is a great body of common knowledge about which there is no dispute, and there appears to be no material advantage in teaching it in different ways in different parts of the country. Take an innocuous subject like arithmetic. Can there be any harm in finding a good text-book in this subject and prescribing it to all the schools in the country?" If we substitute the word geometry for arithmetic, the answer would be, "Yes, very great harm, if examiners are to continue setting pieces of that book to be written out; but no harm at all if the questions are similar to questions in arithmetic, tests of a student's ability to apply his knowledge."

I keep coming back to examiners, and I cannot help it, because I believe that in so far as this movement started by Prof. Perry has been successful, it has been so because some examiners have understood its true aims, and if it has failed, it has failed because examiners have misunderstood its aims. Renan speaks of the good monks who taught him at Saint Sulpice. "They had grasped the first principle of education, which is not to make too easy the task of which the value lies in the overcoming of difficulties." I think I am not

misrepresenting Prof. Perry if I say that his object has been not to make mathematics more easy, but more interesting. For example, take Euclid VI. 2. It depends on Euclid VI. 1, which is said to be too difficult for boys; however, boys will accept a proof of VI. 2 for commensurables only. Of course they will accept it, which shows that it ought not be sprung on them, being unsatisfactory. Let them leave it and go on to something more difficult than the easy proof, but more interesting, such as trigonometry.

I used to teach elementary mathematics, mostly for examinations. I remember my chief difficulty was that my pupils found much of the work dull and purposeless. I now teach elementary physics, and my chief difficulty is that my pupils have not done the mathematics necessary for understanding the methods employed. Of course I am merely one of a large number of mathematical and physics teachers who have joined Prof. Perry in the attempt to get mathematics made more useful and interesting, but not more easy. To some extent we have succeeded. The boys who come to us in the physical laboratories almost invariably know something about decimals. That could not be said ten years ago. But there is one direction in which no advance has been made. There is an important class of boys, not duffers, but boys who are going to make their way in classics, modern languages, history. Almost without exception such boys nowadays reach perhaps as far as simultaneous quadrations (we all know the kind of standard implied), and then usually with satisfaction say "Nunc dimittis." And that reasoned mechanics the possession of which distinguishes the modern world from the mediæval is a sealed book to them. In old times the University of Cambridge saw to it that her classical scholars at least passed the Mathematical Tripos. I am old-fashioned enough to think that the country suffered loss when my University abandoned that old regulation.

#### PERSONAL PARAGRAPHS.

MR. J. H. MERCER, head of the Mathematical Department of the Royal Naval College, Dartmouth, has been appointed to the headmastership of the Military and Civil Side of Cheltenham College, from which Mr. W. M. Baker will retire at the end of the current term. Mr. Mercer was educated at Bradford Grammar School, and was for nine years a master at Oundle, and afterwards at the Royal Naval College, Osborne. Mr. Baker went up to Queen's College, Cambridge, from Framlingham College. He was fifteenth wrangler in 1879. For two years he was a

master at Friar's School, Bangor, for seven years at Rossall, and was appointed to Cheltenham in 1888. His name is well known as the joint author of an elementary algebra and an elementary geometry, both written in conjunction with Mr. A. A. Bourne.

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MR. F. J. R. HENDY has been appointed by the Council of the British and Foreign School Society to the principalship of Borough Road Training College, Isleworth, in succession to Mr. Arthur Burrell. Mr. Hendy was a boy at Amersham School, from which he went to University College, London, and afterwards to Lincoln College, Oxford, where he took a first in Mods. and a second in Greats. He was a master at Fettes for thirteen years, during seven of which he was a housemaster. He then became headmaster of Carlisle Grammar School, a position that he held for six years before being appointed to King Edward's School, Bromsgrove, in 1901. "The Training of Secondary Teachers," in the special inquiries and reports, was written by him.

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MR. ARTHUR BURRELL, who is retiring from the principalship of the Borough Road Training College at Isleworth, is well known as a contributor to THE SCHOOL WORLD, and for the interest that he has for many years taken in the moral instruction and moral education movements. He was a member of the committee the results of the inquiry by which were embodied in two volumes, "Moral Instruction in Schools," edited by Prof. Sadler in 1908, and published by Longmans.

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THE REV. DR. W. PARKER has been appointed headmaster of King's School, Rochester, in succession to the Rev. R. F. Elwyn, who has been obliged to resign owing to ill-health. Mr. Parker was educated at Portora Royal School, Enniskillen, and Trinity College, Dublin. For six years he was a master at Primrose Grange, Sligo, and for two and a half years at Kelvin House, Belfast. He then came to England to a mastership at Highgate School, but went to Dublin as Warden of St. Columba's College, Dublin, only to return to Tonbridge as a master.

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THE trustees of King William's College, Isle of Man, have appointed Canon Owen to succeed the Rev. E. H. Kempson, recently appointed Canon of Newcastle. Mr. Owen went up from Haileybury to Pembroke College, Oxford, where he took a second in Mods. and a first in Greats. He then went to Manchester Grammar School, where he remained for a year, and afterwards spent eight years

as a master at Bromsgrove School before he was appointed headmaster of St. Peter's School, York, in 1902.

\* \* \*

THE London County Council has appointed as psychologist, to work in the Education Officer's department for a period of three years, Mr. Burt, who was educated at Christ's Hospital and Jesus College, Oxford, where he obtained a second in Mods. and a second in Greats. Mr. Burt has since 1906 devoted himself to psychological studies, and has conducted a number of experiments and tests of intelligence, the results of which were published in *The British Journal of Psychology*. He also studied under Professor Külpe in the Psychological Institute at Würzburg, and he has visited Germany, France, Switzerland, and Russia in order to obtain experience of the work in the various universities and schools, and in their psychological laboratories. During the last four years Mr. Burt has been lecturer in experimental psychology and demonstrator in physiology in the University of Liverpool. He has also read papers before the British Association and other learned societies, and has published various articles, such as "Tests of General Intelligence," "Experimental Study of General Intelligence," and "Experimental Tests of Higher Mental Processes."

\* \* \*

MR. C. D. WHITTAKER, headmaster of Taunton School, has been elected a member of the Headmasters' Conference. Mr. Whittaker went from the Nonconformist Grammar School at Bishop's Stortford to Sidney Sussex College, Cambridge. He returned to Bishop's Stortford, where he was a master for fourteen years, during the latter part of which he was second master. In 1899 he became headmaster of Taunton School, formerly and better known as the Independent College, Taunton.

\* \* \*

THE REV. REGINALD BROUGHTON, who died in November, was in the early 'seventies the second master in the Grammar School, Newcastle-on-Tyne. He afterwards became a fellow and lecturer of Hertford College, which was founded in 1874 owing to the munificence of Mr. T. C. Baring on the dissolution of Magdalen Hall.

\* \* \*

PRIZE distributions have occupied much of the time and attention of educationists during the last month. Miss Burstall, one of the most famous headmistresses out of London, presented the prizes to the girls of the St. Olave's and St. Saviour's Grammar School,



of which her former pupil, Miss Frodsham, is now headmistress. The speech that inevitably followed the distribution contained much excellent advice, and was characterised throughout by that admirably clear sight and common sense for which Miss Burstall is noted.

\* \* \*

At the prize distribution of the City of London College, the Lord Mayor, who distributed the prizes, and Sir Edward Clarke, Chairman of the Governors, both recalled that they were students of the College. The Marquis of Northampton, when presenting the prizes to the students of the Northampton Institute, dwelt upon the educational value of the social side of the work, and also upon the great importance of teaching how to learn.

\* \* \*

PROF. GILBERT MURRAY presented the prizes and certificates to the successful boys of the Strand School, and in discussing the purpose of education, asked his audience to imagine an ancient Greek in modern London. He said: "Supposing the Greek had been in England, say, a fortnight, and had got over the various degrees of mental shock which would, no doubt, have prostrated him at the beginning; and supposing the headmaster put to him the question what education was for, and what we were all trained towards, I believe the ancient Greek would have no hesitation in saying that we were all being trained to be citizens. I believe that my ancient Greek would think that almost the whole object of education was to make us feel that we are parts in some great whole, to which we are proud to belong, and which is engaged on some great work."

\* \* \*

MR. H. N. SLOMAN has been appointed headmaster of Sydney Grammar School, in succession to the late Mr. A. B. Weigall, C.M.G., on whose career I commented in July.

\* \* \*

THE REV. CHARLES ELSEE died at Rugby on December 8th at the age of eighty-two. He was a scholar of St. John's College, Cambridge, where he was third wrangler in 1855. He remained as a fellow until he went to Rugby as a master in 1859. He retired in 1901, and was thus mathematical master, school bursar, and housemaster under five headmasters, Drs. Temple, Hayman, Jex Blake, Percival, and James.

\* \* \*

THE death is announced of Mr. Alexander E. Murray, who was, for forty-three years, headmaster of the Manor House, Hastings, and St. Clare, Walmer. ONLOOKER.

## THE MOST NOTABLE SCHOOL BOOKS OF 1912.

THE compilation of the following short lists of books published during 1912, or too late in 1911 for inclusion in the lists included in our issue of last January, has been entrusted to experienced teachers familiar with the needs of schools. The compilers have had a free hand, and attention has not been confined to books reviewed in these columns. Where the character of the volumes is not indicated sufficiently by the titles, a few explanatory notes have been added.

### Modern Languages.

"French Primer." By W. E. M. Llewellyn. (Dent.) I. (phonetic text), 8d.; II. (transition to ordinary spelling), 8d.

"Lectures, Cours Supérieur." By F. B. Kirkman. With Exercises by Miss F. M. S. Batchelor. (Black.) 2s.

"Le Texte Expliqué." By E. J. R. Groves. Cours Moyen. (Blackie.) 2s.

"Exercises in French Free Composition for Upper Classes." By R. N. Baron. (Mills and Boon.) 1s. 6d.

"Littérature enfantine." By Marcel et Mme. Braunschvig. Tome i., Poèmes; tome ii., Récits en prose. (Didier.) 5 francs.

"Landmarks in French Literature." By G. L. Strachey. (Williams and Norgate.) 1s.

"Outlines of the History of German Literature." By J. G. Robertson. (Blackwood.) 3s. 6d.

### Classics.

"Primus Annus: A First Latin Book." By W. L. Paine and C. L. Mainwaring. (Clarendon Press.) 2s.

"Bell's Latin Picture Cards: Speculum Imperi Romani." Edited, with Vocabularies and Exercises, by F. S. Granger. (Bell.) Sixteen cards, 1s. 3d. net. (Sold in various groups also.)

"Comparative Grammar of the Greek Language." By Joseph Wright. (Clarendon Press.) 6s. net.

"Hellenistic Athens." By W. S. Ferguson. (Macmillan.) 12s. net.

"Greek Bucolic Poets." With an English translation by J. M. Edmonds. (Heinemann.) Loeb Classical Library. 5s. 6d. net.

"Studies in the History of Classical Teaching, Irish and Continental." By Rev. T. Corcoran. (Dublin: Educational Company of Ireland.) 7s. 6d. net.

### English Language, Grammar, and Composition.

"The English Language." By L. Pearsall Smith. (Williams and Norgate.) 1s.

Interesting and scholarly; should make an admirable school book.

"The Beginner's English Grammar." By F. W. and E. Harrison. (Longmans.) 1s. 6d.

Excellent; a splendid introductory book.

"A Skeleton English Grammar." By S. R. Unwin and G. Abbot. (Fisher Unwin.) 1s. net.

A handy volume for those who wish an outline to fill in with much or little detail.

"The Revised English Grammar." By A. S. West. (Cambridge University Press.) 2s. 6d.

West's deservedly popular book, with the new terminology.

"Matter, Form, Style." By H. O'Grady. (Murray.) 2s.

A suggestive volume, showing, on original lines, how English composition may be taught in an interesting way.

"English Composition for Junior Forms." By E. E. Kitchener. (Murray.) 1s. 6d.

A carefully planned and executed text-book.

"English Exercises for Intermediate Classes." "English Exercises for Higher Classes." By E. B. Bruce. (Blackie.) 8d. each.

Handy books supplying suitable material for class-work of varying difficulty.

### History.

#### BRITISH HISTORY.

"The Groundwork of British History." By G. T. Warner and C. H. K. Marten. (Blackie.) 6s.

"A History of the British Nation." By A. D. Innes. (Jack.) 3s. 6d. net.

#### WORLD HISTORY.

"The Ancient World." By C. Du Pontet. (Edward Arnold.) 4s. 6d.

#### CIVICS.

"Citizens of the Empire." By I. Pluncket. (Oxford University Press.) 1s. 6d.

"The British Subject, his Rights and his Duties." By T. Bateson and W. J. Weston. (McDougall.) 8d.

#### ECONOMIC HISTORY.

"An Introduction to English Industrial History." By H. Allsopp. (Bell.) 2s.

"An Industrial and Social History of England." By G. Collar. (Pitman.) 2s.

"An Introductory Economic History of England." By S. Salmon. (Longmans.) 1s. 6d.

### Geography.

"The Essentials of World Geography for Junior Students." By J. F. Unstead and E. G. R. Taylor. (Philip.) 2s.

An interesting and accurate book.

"A Class Book of Physical Geography." By A. T. Simmons and E. Stenhouse. (Macmillan.) 4s. 6d.

Good, clear reasoning; plenty of exercises.

"An Introduction to Physical Geography." By M. I. Newbiggin. (Dent.) 3s. 6d.

For Oxford and Cambridge Senior "Locals," and London Matriculation.

"Dent's Historical and Economic Geographies." Book I., World Studies. By H. Piggott and R. Finch. (Dent.) 3s. 6d.

A book to "stir the imagination."

"The Clarendon Geography." Vol. i., part i., Principles of Geography. Part ii., British Isles. Part iii., Europe. By F. D. Herbertson. (Clarendon Press.) 3s. the vol., or 1s. 4d. each part.

Strong on the "human note."

"The Oxford Geographies." Vol. v., North and Central America and West Indies. Vol. vi., The

Three Southern Continents. By F. D. Herbertson. (Clarendon Press.) 1s. 6d. and 1s. 9d.

Satisfactory from every point of view.

"Geography of Europe." By T. Alford Smith. (Macmillan.) 2s. 6d.

A "practical geography" on modern lines.

"The Junior Scientific Geography." Book V., Monsoon Region of Asia. Book VI., Atlantic Seaboard of North America. By E. W. Heaton. (Ralph, Holland.) 10d. each.

Physical control well brought out.

"Maps: How They are Made and How to Read Them." By H. N. Dickson. (Bacon.) 6d.

Should lead to improved ideas on maps generally.

### Mathematics.

"Blackie's Experimental Arithmetics." By B. A. Tomes. In six books, with the Companion Teachers' books. Books I. and II., 2d. each; III., 3d.; IV., and V., 4d. each; VI., 5d. Teachers' Books, I. and II., 1s. each; III.-VI., 1s. 6d. each.

An excellent course, the subject in the later books being linked on to algebra and geometry, including mensuration.

"Algebra for Beginners." By C. Godfrey and A. W. Siddons. (Cambridge University Press.) 2s. 6d.

This book follows the recommendations of the report of the Mathematical Association committee on the teaching of elementary algebra and numerical trigonometry, and takes the pupil up to the solution of quadratic equations.

"Numerical Trigonometry." By J. W. Mercer. (Cambridge University Press.) 2s. 6d.

A companion work to the preceding, following the lines of the Mathematical Association's report.

"Geometry for Schools." Vols. i.-iv. By W. G. Borchardt and A. D. Perrott. (Bell.) 3s. 6d.

Vol. i. covers stages I. and II. of the Board of Education Circular, vol. ii. properties of triangles and parallelograms, vol. iii. areas, vol. iv. circles.

"Elementary Geometry." Parts i. and ii. By A. E. Layng. (Murray.) 3s.

Contains within a moderate compass the essential parts of elementary geometry, including the theory of similar figures.

"An Introduction to Algebraical Geometry." By A. Clement-Jones. (Clarendon Press.) 12s.

More especially suited to meet the needs of scholarship candidates.

"Analytical Geometry." By C. O. Tuckey and W. A. Nayler. (Cambridge University Press.) 5s. net.

"The Calculus for Beginners." By W. M. Baker. (Bell.) 3s.

Useful for students who wish to acquire rapidly a working knowledge of the differential and integral calculus.

### Chemistry.

"Experimental Science. II., Chemistry." By S. E. Brown. (Cambridge University Press.) 2s.

"Inorganic Chemistry." By S. W. Burnell and A. J. Dicks. (Ralph Holland.) 3s. 6d.

"Inorganic Chemistry." By W. A. Shenstone. Revised by R. G. Durrant (Edward Arnold.) 5s.

"Inorganic Chemistry." By J. W. Mellor. (Longmans.) 7s. 6d.

A comprehensive advanced text-book, on modern lines.

"Elementary Quantitative Analysis." By F. M. Oldham. (Mills and Boon.) 1s. 6d.

"Modern Science Reader, with Special Reference to Chemistry." By R. M. Bird. (New York: The Macmillan Co.) 5s. net.

A compilation of articles dealing mainly with various aspects of industrial chemistry, suitable for advanced pupils.

"Organic Chemistry." By W. H. Perkin and F. S. Kipping. (Chambers.) 7s. 6d.

A new and thoroughly revised edition.

**Physics.**

"Intermediate Physics." By Dr. W. Watson, F.R.S. (Longmans.) 6s. net.

A general course of physics, attention being paid to some modern developments of the subject.

"A Handbook of Physics." By W. H. White. (Methuen.) 7s. 6d.

A general course of physics, dealt with in a colloquial style.

"A Text-book of Physics." By H. E. Hurst and R. T. Lattey. (Constable.) Vol. i., Dynamics and Heat. 3s. 6d. net. Vol. ii., Sound and Light. 3s. 6d. Vol. iii., Magnetism and Electricity. 4s. net.

"Magnetism and Electricity." By E. E. Brooks and A. W. Poyser. (Longmans.) 7s. 6d. net.

A fairly comprehensive treatise, written with simplicity and accuracy.

"A Course of Elementary Practical Physics." By H. V. S. Shorter. (Clarendon Press.) Part i., Mensuration, Mechanics, Hydrostatics. 2s. Part ii., Heat and Light. 3s.

Questions and short descriptions of experiments, with blank spaces to be filled up by students.

**Botany and Nature-study.**

"Exercises in Nature Study." (Nisbet's Self-Help Series.) Three books, 6d. each.

For children of nine to thirteen years of age. On sound lines.

"Botanical Experiments for Schools." By Ida H. Jackson. (Blackie.)

Suitable for a first year's course in plant physiology.

"The Story of our Trees." By Margaret M. Gregson. (Cambridge University Press.) 2s. 6d.

An eminently practical course for schools. Twenty-four lessons, from October to June.

"Elementary Plant Biologv." By J. E. Peabody and A. E. Hunt. (New York: The Macmillan Co.) 4s.

Combines good practical work with clear descriptions.

"Applied Biology." By M. A. Bigelow and A. N. Bigelow. (New York: The Macmillan Co.) 6s. net.

Another successful combination of text-book and practical guide. Deals with botany, zoology, and human biology.

"Plant Geography." By G. S. Boulger. (Dent.) 1s. net.

A useful digest for advanced botany students.

"A Guide for the Study of Animals." By a Committee of Teachers of Biology in the Chicago High Schools. (Heath.) 2s.

Good practical exercises on a large number of animal types.

"The Woodcraft Supplementary Reader." By Owen Jones and Marcus Woodward. (Sampson Low.) 1s. net.

A capital application of nature-study to scouting.

"Gardens in their Seasons." By C. von Wyss. (Black.) 1s. 6d.

An interesting nature reader, gorgeously illustrated, chiefly by coloured plates.

**OXFORD UNIVERSITY LOCAL EXAMINATIONS.**

**SET SUBJECTS FOR 1914.**

**Preliminary (July and December).**

*Religious Knowledge.*—(a) 1 Kings (chap. x.—end); (b) St. Luke (chap. vi.—end); (c) Acts (chap. xvii.—end); (d) the Church Catechism.

*History.*—(a) Roman History as treated in the "Junior History of Rome," by M. A. Hamilton, parts ii., iii. (Clarendon Press); (b) English History, either (A) the Outlines from 55 B.C. to 1399 A.D.; or (B) the Outlines from 1399 to 1714; or (C) the Outlines from 1689 to 1837.

*English.*—(a) English Composition; (b) Defoe, "Robinson Crusoe," part i.; (c) Blackmore, "Lorna Doone," abridged by W. A. Warren (Sampson Low); (d) either (α) Longfellow, "Hiawatha"; or (β) "Lyra Historica," by Windsor and Turrall, parts i., ii. (Clarendon Press).

*Geography.*—(iii) One of the following: (A) England and Wales; (B) Scotland and Ireland; (C) Canada.

*Latin.*—Either "Scenes from the Life of Hannibal," by W. D. Lowe (Clarendon Press); or "Selections from Ovid," by W. D. Lowe, i.—xx. (Clarendon Press).

*Greek.*—Sidgwick's "First Greek Reading Book" (ed. iii.), Exercises 1-50 (Rivingtons).

*French.*—"Trois semaines en France," ed. Chouville and Savory (Clarendon Press).

*German.*—"Kinderfreuden" (Clarendon Press).

**Junior (July and December).**

*Religious Knowledge.*—(a) Old Testament History, the History of the Kingdoms of Israel and Judah from the Disruption to the Captivity; (b) 1 Kings; (c) St. Luke; (d) Acts xiii.—end; (e) Prayer Book.

*Greek History.*—Outlines of Greek History from 504 to 445 B.C.

*Roman History.*—Outlines of Roman History from 509 to 242 B.C.

*English History.*—Either (α) Outlines of English History from 55 B.C. to 1135 A.D.; or (β) Outlines of English History from 1066 to 1485; or (γ) Outlines of English History from 1485 to 1714; or (δ) Outlines of English History from 1689 to 1837.

*General History.*—(i) from 1803 to 1880.

*Foreign History.*—Outlines of General European History from 1598 to 1715.

*English Literature.*—(b) "Poems of England," ed. George and Sidgwick (Macmillan), with Kingsley, "Westward Ho!"; (c) Shakespeare, "Tempest" and "Midsummer Night's Dream"; (d) Shakespeare, "Julius Cæsar"; (e) Shakespeare, "Richard II."; (f) Scott, "Marmion"; (g) Scott, "Fortunes of Nigel"; (h) Lytton, "The Last of the Barons"; (i) Southey, "Life of Nelson"; (j) Wordsworth, Selections from, ed. M. Arnold (omitting Reflective and Elegiac Poems) (Macmillan); (k) "Lyra Historica," by Windsor and Turrell, parts i., ii., iii. (Clarendon Press); (l) Walton's Bunyan, Defoe, in "Select English Classics," ed. A. Quiller-Couch (Clarendon Press); (m) Tennyson, "The Lady of Shalott and other Poems," "The Princess."

*Geography.*—(i) Geographical Principles, (ii) British Isles, (iii) one of (a) the monsoon region of Asia, (b) Africa south of the Sahara, (c) Atlantic region of North America.

*Latin.*—Cæsar, "De Bello Gallico," I.; Cicero, "In Catilinam," I.; Ovid, "Metamorphoses," XI., ed. Davies (Clarendon Press).

*Greek.*—Xenophon, "Anabasis," I.; Plutarch, "Life of Julius Cæsar," ed. du Pontet (Clarendon Press).

*French.*—Either Mérimée, "Colomba," or Feuillet, "Le roman d'un jeune homme pauvre" (Clarendon Press).

*German.*—Hoffmann, "Heute mir, morgen dir" (Clarendon Press).

#### Senior (March, July, and December).

*Religious Knowledge.*—(a) Old Testament History, the History of the Northern and Southern Kingdoms as contained in 2 Kings, xv.—end, with Isaiah i.—xii., xxviii.—xxxiii.; (b) 1 Kings; (c) St. Luke; (d) St. Luke (vi.—end) in Greek; (e) Acts xiii.—end; (f) Epistles (1 and 2 Thessalonians); (g) Church History, History of the Church in the British Islands to 988, with special reference to the lives of Columba, Augustine of Canterbury, Theodore, Wilfrid, and Dunstan; (h) Sanday, "Outlines of the Life of Christ" (T. and T. Clark); (i) Prayer Book.

*Greek History.*—Outlines of Greek History from 594 to 445 B.C., with special questions on "The Greek Commonwealth," by A. E. Zimmern, pp. 1-250 (Clarendon Press).

*Roman History.*—Outlines of Roman History from 509 to 242 B.C., with special questions on the first Punic War.

*English History.*—(i) Either (a) 55 B.C. to 1135 A.D.; or (b) 1042-1485; or (c) 1399-1714; or (d) 1603-1815; or (e) 1689-1880; (ii) the Outlines of English History from the Anglo-Saxon Conquest to 1837. Candidates may offer either (i) or (ii) or both (i) and (ii).

*General History.*—One or more of the periods 1066-1516, 1803-1880, the Extension of European Power to other Continents.

*Foreign History.*—Outlines of General European History from 1598-1715.

*English Language and Literature.*—(b) General Literature. A large choice of questions will be given. (c) Hakluyt, "Voyages of Hawkins, Frobisher, and

Drake" (Clarendon Press), and Kingsley, "Westward Ho!"; (d) Shakespeare, "Tempest," "Midsummer Night's Dream," and Milton, "Comus"; (e) Shakespeare, "Julius Cæsar," with North's "Translation of Plutarch's Cæsar" (Clarendon Press); (f) either Shakespeare, "Richard II." or "Twelfth Night"; (g) Scott, "Marmion" and "Fortunes of Nigel"; (h) Sheridan, "The Rivals," and Goldsmith, "The Good-natured Man"; (i) Burke, "Reflections on the French Revolution," and Byron, "Prisoner of Chillon," "Mazeppa," "Lament of Tasso" (j) Southey, "Life of Nelson"; (k) Thackeray, "The Virginians"; (l) Chaucer, "The Tale of the Man of Lawe" and "The Second Nonnes Tale"; (m) Spenser, "Faery Queene," Books I., II.; (n) Wordsworth, Selections from, ed. M. Arnold (Macmillan), and Keats, in "Select English Classics," ed. A. Quiller-Couch (Clarendon Press); (o) Tennyson, "The Coming of Arthur," "The Marriage of Geraint," "Geraint and Enid," "The Passing of Arthur"; (p) Matthew Arnold, "Selected Poems," ed. George and Leigh (Clarendon Press), and Clough, Poems, in "Oxford Plain Texts" (Clarendon Press).

*Geography.*—(i) Principles of Geography; (ii) British Empire; (iii) one of (a) Europe, (b) Africa, (c) North America (including West Indies).

*Latin.*—4<sup>th</sup>, Virgil, "Aeneid," V., VI., or 47, Cæsar, "De Bello Gallico," I., II., or 4<sup>th</sup>, Livy, V.

*Greek.*—Either 4<sup>a</sup>, Euripides, "Alcestis," or 47, Xenophon, "Anabasis," I., II.

## RELATIONS BETWEEN SCHOOL AND UNIVERSITY.<sup>1</sup>

### SCHOOL CANDIDATES IN EXAMINATIONS ABOVE UNIVERSITY ENTRANCE STANDARD.

THE examinations which seem to be most important from the point of view of overlapping of secondary and university education are:—

1. The intermediate and the final examinations for the degrees of B.A. and B.Sc. of London University.

2. The higher local examinations of the Universities of Oxford and Cambridge.

The subjoined statistics referring to these examinations are of interest. The numbers have been determined from the published class lists in the case of Cambridge, but those relating to the Universities of Oxford and London were supplied officially.

#### University of London.

Exams.	Total No. of candidates during academic year 1909	No. of candidates giving a school as place of preparation
B.A.		
(1) Intermediate ...	868	216
(2) Final ...	345	7
B.Sc.		
(1) Intermediate ...	807	257
(2) Final ...	408	8

#### University of Oxford—1910.

Higher local ... 328 ... 212

#### University of Cambridge—1910.

Higher local ... 1,120 ... 509

<sup>1</sup> From the final report of a Committee on the Overlapping between Secondary Education and that of Universities and other places of Higher Education, presented to the Educational Science Section of the British Association at Dundee, September, 1912. The Committee consisted of Sir H. A. Miers (chairman), Prof. R. A. Gregory (secretary), Mr. D. Berridge, Mr. C. H. Bothamley, Miss L. J. Clarke, Miss A. J. Cooper, Miss B. Foxley, Principal E. H. Griffiths, and Prof. A. Smithells.

The general result is, therefore, that about 28 per cent. of the London Intermediate candidates are prepared at school, about 50 per cent. of the Cambridge Higher Local candidates, and about 66 per cent. of those taking the Oxford Higher Local examinations.

#### SECONDARY SCHOOLS RECOGNISED BY THE BOARD OF EDUCATION.

The inquiry concerning schools of this group was conducted by means of a printed form of questions, between 600 and 700 copies of which were issued to the chief education officers of administrative counties and county boroughs, by whom they were distributed to the schools within their respective areas. Altogether 292 forms were received, and they came from 177 boys' schools in administrative counties, 29 boys' schools in county boroughs, 67 girls' schools in administrative counties, and 19 girls' schools in county boroughs.

It is difficult to frame a definition of overlapping which would be generally applicable, but for the purposes of this inquiry the passing of a university matriculation examination, or its equivalent, was adopted as the boundary line. Head-teachers were asked (1) whether in their opinion there is overlapping between the work done in secondary schools and that done in universities or other places of higher education; (2) how many pupils in the particular school had during the last three years passed a matriculation examination and read for a further university examination whilst still at school, or, without taking a definite course, had remained at school for a substantial period after passing the said examination. Information was asked for in respect of ordinary pupils, and also in respect of Board of Education bursars and pupil-teachers, whose presence has introduced a new feature into secondary schools during the last few years. Bursars and pupil-teachers are over the age of sixteen at the time of their recognition as such, and it is not improbable that overlapping occurs more frequently with them than with ordinary pupils. The head-teachers were also asked whether they had any changes to suggest in (1) university regulations concerning the matriculation examination and the intermediate or other examinations; (2) the Board of Education's regulations concerning bursars and pupil-teachers, or (3) the curriculum and organisation of secondary schools.

#### BOYS' SCHOOLS IN COUNTY BOROUGHS.

The schools in county boroughs are in such close proximity to a university, university college, or large technical institute that they are subject to influences which do not operate at all, or operate to a much smaller extent, on the majority of schools in administrative counties, and it seems advisable to keep the two groups distinct.

In the newer secondary schools, supported largely or wholly by municipal authorities, there is stated to be no overlapping with the work of higher institutions. The maximum leaving age of these schools is seventeen or eighteen, but a large proportion of the pupils do not stay up to seventeen, and the matriculation examination is regarded as a school-leaving examination.

The headmasters of the long-established (and usually endowed) schools with a leaving age of eighteen or nineteen under their governing scheme state that if a matriculation examination is taken as the boundary line, and the examination can be passed by a clever boy at the age of sixteen, or even earlier, overlapping does and must occur in the case of boys who remain for a full school course, *i.e.*, up to the maximum age allowed. Some boys stay on for further education, but without any intention of proceeding to a university, and if they are not to waste time they must do work above matriculation standard; others stay in order to compete for university scholarships, and under existing regulations and with the somewhat high limits of age allowed, the standard of these competitions is much higher than that of matriculation, and in some instances is not far removed from the standard of a pass degree; others read for the intermediate examinations of the university to which they intend to go, and if the regulations permit, pass the examination before leaving school, but if not, they lighten their university work and materially increase their chance of taking an honours degree. The headmasters of these schools, as a whole, regard this kind of overlapping not only as unavoidable, but as having distinct advantages. There is practical unanimity of opinion that the age at which clever boys can pass the existing matriculation examinations is considerably below that at which they can with advantage enter a university, with its greater freedom from restraint. Generally, opinion seems to be in favour of eighteen as the minimum age for entrance at a university, but there is no marked evidence of any general desire to raise the minimum age for matriculation above sixteen, though some suggest raising it to seventeen.

Many headmasters of schools of this type regard the intermediate syllabuses and examinations of London and the newer universities as being essentially school courses and examinations for first-grade schools with a high leaving age. Some consider that boys who pass the intermediate examination at school should be allowed to take their degree after two years' residence at the university, and point out the relief this would give to parents of limited means; others, including the headmasters of two large well-known schools in two of the largest county boroughs, consider that no examination passed at school should reduce the university course below three years, though some of these would allow the degree examination, but not the degree, to be taken at the end of two years; others are of opinion that all boys who have passed the intermediate examination whilst at school should be required to read for an honours degree at the university.

Several headmasters complain that some of the newer universities do work below matriculation standard, and there is practical unanimity of opinion that no boys ought to be allowed, as they often are, to take up residence at a university, whether old or new, until they have actually passed the examination required for matriculation. Others state that the work of a good upper sixth form is little, if at all, below the standard at present required for a pass degree.

## BOYS' SCHOOLS IN ADMINISTRATIVE COUNTIES.

The headmasters of many schools in small towns and in the country state that their work does not overlap at all with that of higher institutions. Although under their schemes they may keep pupils until seventeen or eighteen, few reach matriculation standard, and very few go beyond it. Most of the pupils leave before they reach the age of sixteen.

Some of these schools, however, send a small proportion of pupils to the universities or larger technical institutions, and many of these pupils, after passing a matriculation examination, will continue at school in order to compete for a university scholarship, and sometimes, but rarely, a boy will pass the intermediate examination while still at school. In these cases the overlapping is, of course, of the same nature as in the large towns, and the opinions of the headmasters are practically identical with those already quoted. There is no desire that the minimum age for passing the matriculation examination should be raised.

## GIRLS' SCHOOLS IN COUNTY BOROUGHES.

In the larger secondary schools in the large towns a fair number of girls remain after passing a matriculation examination, but by no means all of them intend to proceed to a university. Those who do intend to go work for the intermediate examination or follow a corresponding course. There is general agreement that a girl ought not to go to a university before the age of eighteen, and also that it is a great advantage for a girl, from the point of view of health and the avoidance of overstrain, to have done part of the work for her degree course while still at school, even though the work may be done in a somewhat different manner and from a different point of view. "The students all state that though the work has already been taken here (a large northern school), it was taken in such a different way and with so much more detail that no disadvantage has been felt."

One or two girls' schools which work in close association with newer universities make it a definite aim that a girl going to the university shall have at least one year's further work at school between the passing of the matriculation examination and going into residence.

The overlapping in the case of girls' schools is of the same nature as that in boys' schools, and, on the whole, would seem to be more frequent. Headmistresses are, however, even more emphatic than headmasters as to the advantage of the overlapping, and they lay stress on the greater danger of overstrain in the case of girls.

It is noteworthy that many headmistresses are in favour of raising the minimum age for matriculation by girls to seventeen, and several consider even eighteen too early an age, as a rule, for a girl to enter a university.

## GIRLS' SCHOOLS IN ADMINISTRATIVE COUNTIES.

In the smaller girls' secondary schools those who stay beyond the matriculation stage are as a rule bursars, or pupil-teachers, or girls who intend to enter the teaching profession in some way. Here,

also, we meet with the same general opinions and practice—*i.e.*, that if a girl intends to enter a day training college attached to a university, with the view of following a degree course, a year's work of preparation at school should follow the passing of the matriculation examination.

The additional year does not, however, seem to be regarded as *necessary* for bursars who wish to go to an ordinary training college, although some bursars will pass the necessary qualifying examination some time before the termination of the bursary.

## SECONDARY SCHOOLS AND TRAINING COLLEGES.

In several cases it is represented that the work of the ordinary training college for elementary-school teachers overlaps the work of the secondary schools. It is stated that pupils who have been for several years at a secondary school and have passed a matriculation examination, possibly one or two years before they enter the training college, have practically to mark time during their first year at the college, with the courses as now arranged. It is represented that at present the colleges do not make sufficient allowance for a school education which is considerably in advance of that received by many of the students who enter the colleges. The present courses require modification if they are to meet the needs of this class of pupil, and the modification should take the direction of less academic work and much larger opportunities for practical training in professional work. It may be stated in this connection that a modified course of this kind has been in operation very successfully for three or four years in the women's department of the day training college at Bristol.

## SECONDARY SCHOOLS AND TECHNICAL INSTITUTES.

In a few cases it is stated that the technical institutions do work which ought to be done at secondary schools, but this complaint is not frequent. Technical schools necessarily cater for students who for various reasons may not have been able to have a full secondary-school course, but the absence of any general complaint from town secondary schools would seem to indicate that the local education authorities have not been unmindful of the necessity for proper co-ordination of the technical institute with the schools.

Many of our correspondents express very strongly the view that the mere fact that a pupil has passed a matriculation examination or has reached a standard of knowledge equivalent to the beginning of university work is not of itself satisfactory evidence that he can take up residence at a university with advantage. They consider that "overlapping" cannot be defined solely on the basis of mental attainments, whether determined by examination or by the course of work that has been followed. The proper time for a boy to pass from the school to the university is a question of the state of development of his general as well as his intellectual faculties.

While there is no general desire to raise the minimum age for the matriculation examination, it is suggested from several quarters that there should be a lower and a higher matriculation examination,

which would also serve the general purpose of leaving examinations, the lower examination being suitable for pupils of sixteen to seventeen, of much the same standard as at present, while the higher examination, suitable for pupils of eighteen to nineteen, would be of a higher standard and possibly with fewer subjects, and should be accepted as qualifying a candidate to follow a course for an honours degree without any further intermediate examination.

#### GENERAL CONCLUSIONS.

The evidence placed before the committee shows that a certain amount of overlapping does, in fact, exist between the work of secondary schools and that of universities and other places of higher education. Although individual opinions differ, this overlapping is not generally deplored by representatives either of schools or universities. Headmasters, and especially headmistresses, are of opinion that a pupil may with advantage remain at school for a year or more after passing the present matriculation examination, or reaching an equivalent standard, and this extension of the school course is regarded by them as particularly valuable for students who intend to prepare at the university for an honours degree. Some headmistresses consider that to go over the earlier part of the degree work at school, even though by a different method, is a useful safeguard against mental overstrain on the part of girls.

It is unavoidable that a certain amount of common ground should be covered by the teaching in schools on one hand and at universities and university colleges on the other. When a school course is designed to terminate for average boys and girls where university work ordinarily begins, the cleverer boys and girls will certainly get beyond this standard whilst still at school, unless they are to go to the university at an age which is generally recognised as unsuitable, on grounds other than those of mental attainments. In other words, the more advanced pupils at many secondary schools will always be equal to, or in advance of, many undergraduates who are reading for a pass degree at the university.

Again, some school subjects have to be taught at a university to students who have not previously had the opportunity of learning their rudiments, and many of the students to whom this applies enter the university at a comparatively advanced age.

The relation between certain public schools and the older universities is so intimate that arrangements can be made to prevent overlapping. On the other hand, most of the newer universities arrange their courses in "years" without any special regard to the requirements of individuals, the result being that students who have just reached matriculation standard may have to work with others who are practically ready for the intermediate examination. In these circumstances, it is not surprising that complaints are made on one hand that the university course is too rapid, and on the other that it is too elementary. It seems to the committee not improbable that undesirable overlapping at any university might to a large extent be prevented if more care were exercised

to ensure that the classes were suitable to the particular student.

#### SCHOOL CURRICULA.

Although in the public schools, from which a considerable proportion of boys proceed to the universities, there may be no disadvantage in arranging the work in the upper part of the school on lines intentionally preparatory to the university course, and to some extent overlapping it, the case is quite otherwise in the large number of secondary schools, where the proportion of pupils who will go to a university is small. In these schools, which provide for the bulk of the children of the professional and commercial classes, the great majority of the pupils will pass into active life as soon as they leave the school. There has been, and still is, far too great a tendency to allow the curricula of such schools, especially in the upper forms, to be moulded to the requirements of the small proportion of pupils who will go to a university. But if a pupil going into active life direct from school spends the valuable last years of his school course in work designed essentially as an introduction to a further long course of study, there is grave danger that he will enter upon his career with a number of loose ends of incomplete knowledge, but with no power of applying any of them even to the simplest problems which he will constantly meet in his daily occupation. Advanced work of this kind is very unprofitable, because it leads to no definite goal.

In secondary schools in general the pupils who proceed to the universities are not the normal product. They should be regarded as the exceptions, for whom something may be added to or adapted in the ordinary school course; the whole curriculum should not be directed to meet their special requirements to the detriment of the great majority of pupils.

The normal course of a secondary school should be designed to meet the needs of the average pupil, and in the upper forms to give him the opportunity of leaving school with a real grasp of some departments of knowledge, complete so far as they go, and having a distinct relation to his future life in both its occupations and its leisure.

#### RECOMMENDATIONS.

After consideration of the evidence, the committee is of opinion:—

(1) That students should not be prohibited from taking the matriculation examination or its equivalent as soon as they are sixteen, but they should not ordinarily be allowed to enter a university for a degree course below the age of seventeen.

(2) Universities should not provide instruction for the purpose of preparing candidates for matriculation.

(3) Students for degree courses should not be admitted to universities or their constituent colleges until after they have passed the matriculation examination.

(4) A university examination subsequent to matriculation should not be allowed to become a school examination.

(5) There should be two school-leaving examinations conducted conjointly by the universities or by a representative examining board:—

- (a) Suitable for pupils of about sixteen years of age.  
 (b) Suitable for pupils between eighteen and nineteen years of age.

The earlier examination (a), representing a good general education, and of the same standard as the present London Matriculation or similar examinations, should be accepted for matriculation and for admission to professional courses as those examinations are at present.

The later examination (b), of the same general standard as the Intermediate B.A. or B.Sc. examination of the University of London, but not necessarily of the same character or substance, should not be designed primarily for those who intend to proceed to a university, and should admit of some degree of specialisation. Under certain conditions, it might be accepted by universities as excusing students from any further examination between their entrance into the university and their degree examination. Only those pupils who have passed the more elementary examination (a) should be admitted to the higher examination.

[An appendix to the report summarises the recommendations of the Consultative Committee of the Board of Education on Examinations in Secondary Schools. The report of this committee was published after the foregoing conclusions had been drafted. It is significant that two independent inquiries should have led to practically the same recommendations concerning leaving examinations.]

## HISTORY AND CURRENT EVENTS.

WHO are they that really govern the British Empire? We have no "written constitution," even for the United Kingdom, and the method of its working is therefore the subject of innumerable works, the writers of which have to base their conclusions on observation of a constantly shifting series of facts. Now and then the death of a statesman gives occasion for the revelation of what would otherwise remain State secrets; and lately there has passed away one who was for a few years Permanent Under-Secretary at the India Office. In commenting on the career of Sir Richmond Ritchie, *The Times* remarks: "He had his own ideas of Indian policy, but they never impaired his perfect fidelity to a chief who did not happen to share them all." From this guarded statement, what conclusion can be drawn? A man of strong ideas would not be likely to remain in a position in which those ideas were constantly overridden. A "responsible" member of a Cabinet, such as the Secretary for India, must carry out the policy which he can justify to the House of Commons. What is the result of the action and reaction of the minds of two men, thus placed in, as it were, joint control? Who *does* govern the Empire?

To the world in general, George Fox and his first followers stood for a negation of most of the outward forms in which Christianity had clothed itself. No place was sacred, and in churches they wore their hats, no office was sacred, they recognised no "orders," and their enemies were but exaggerating when they alleged that the Quakers claimed to be

able to write the Bible anew. They had no set forms of worship, and *a fortiori* ceased to use even the two sacraments that the English Church had retained from mediæval times. But time has worked changes in many customs of the Society of Friends. They have learned to say "you" to one person, they are no longer so rigid in their ideas on dress, and the year that has just ended has seen a still more remarkable change. They have bought Jordans Farms and Swarthmore Hall, and are intending to use them for denominational purposes. Those who know anything of early Quaker history will see at once that the Friends are beginning to reverence places of historic interest. These estates in Buckinghamshire and Lancashire will be the objects of pilgrimage, and history will once more repeat itself. Quakers will give one more proof of the universal human need for a visible representation of the invisible.

STRADIVARIUS has been called a "blackleg" by members of a trade union. A discussion has been taking place in *The Times* on the meaning of the word "quack," apropos of such a person as a well-known bone-setter, and the Imperial family of Austria is rejoicing at the birth of a child to a wife that is not "morganatic." If we were to attempt definitions of these three words—blackleg, quack, morganatic—would there be any term common to all three definitions? Should we be tempted to use the word "heretic"? We are constantly told that in Europe we have nothing corresponding to the rigid caste system of India, but we are becoming more and more sceptical on that point. Whether it is only a social custom which enforces its ostracism by unwritten public opinion, or the regulations of a trade guild or trade union, working with or without formal legislative sanction, or the State-regulated and patronised unions known as universities or Royal colleges of surgeons, we find everywhere and everywhen the machinery of bodies which regard non-members as interlopers, unwarranted, illegal, "heretical" rivals who should be crushed. If this power is wielded in the interests of the community at large, it is regarded as good; if not, its fate is sooner or later destruction.

THERE have lately been found, at Elephantine, near Syene and the First Cataract on the Nile, writings on papyrus dating from the fifth century B.C. which throw a flood of light on the history of Israel. On the island of Elephantine there was a colony of Israelite soldiers in the pay of the King of Persia, who erected a temple in which they worshipped, not only JHWH, but also Ashim and Anat, gods to whom were erected "sacred stones." The names of these two gods are not unknown to the Old Testament as we have it, and, in the light of these newly discovered documents, scholars think we should amend the text of Amos viii. 14 so as to read, "they that swear by the Ashim (*vice* sin) of Samaria." Thus we learn something of the worship of the northern kingdom, and have a hint, possibly, of the fate of "the lost ten tribes." The documents belong to the century of Ezra and Nehemiah, the period when these two were, with the help of the Persian kings, laying the foundations



of Judaism, and thus carrying out more completely the work begun by Josiah of Judah in the year 622-1. Scholars used to doubt the authenticity of the royal letters in the books of Ezra and Nehemiah on the ground that Persian kings would not so speak of the God of Israel, but now it is known that, so far from being doubtful, such letters were matters of "common form" in the Persian Chancery, and that it was by royal command that these Elephantine Jews kept their sacred seasons.

## ITEMS OF INTEREST.

### GENERAL.

THE Board of Education announces, in connection with the Teachers' Register, column B, that the period during which applications may be received for the repayment of the sums of £1 1s. paid by teachers on admission to column B of the register maintained by the previous Teachers' Registration Council is now extended to February 28th, 1913. Applications for such repayment should be addressed to the Board of Education, and should state the registered number and the service of the applicant with dates. There will be no further extension of the time during which applications can be received.

THE London County Council annual conference of teachers will be held from January 2nd to 4th, 1913, at Birkbeck College, Chancery Lane, London. The subjects for the various meetings, which are held in the morning at 11 o'clock, and in the afternoon at 2 o'clock, are as follows: "The Montessori Method in Education," "Reading and Writing," "Attention," "School Hygiene," and "Educational Experiments in Schools." Applications for tickets of admission should be made to the Chief Inspector, London County Council, Education Offices, Victoria Embankment, London.

THE eleventh annual meeting of the North of England Education Conference will be held on January 2nd to 4th, 1913, at Nottingham. All the meetings of the conference will be held at the University College. On the mornings of January 3rd and 4th united conferences will be held. At the first, papers will be read by the Bishop of Lincoln on the function of university education in civic life, and by Mr. P. E. Matheson on the educational outlook; at the second, Sir William Mather will read a paper on the co-operation of employers and education authorities, and Mr. George Cadbury, Junior, on the educational responsibilities of the employer. At the sectional meetings a variety of topics will be discussed, among which the following may be mentioned: the continued education of adults in relation to the Workers' Education Association movement, trade schools and occupations for boys and girls, rural schools and agricultural education, handicraft in elementary schools, the supply of teachers, and home training in our schools.

THE conference week of educational associations, to be held in the University of London from January 6th to January 11th next, should prove a great convenience to teachers and others interested in educational matters. The Principal of the University, Sir

Henry Miers, F.R.S., and Dr. M. E. Sadler are to speak at the opening meeting for members of all the associations taking part. More than a dozen of the various educational societies are holding their general meetings at the University during the week. These include the Art Teachers' Guild, the Associations of Assistant-mistresses, Teachers of Domestic Science, and University Women Teachers, the College of Preceptors, the Froebel Society, the Geographical, Historical, and Modern Language Associations, Private Schools Association, Teachers' Guild, and Training College Association. An educational exhibition will be open during the whole conference week, and on the Thursday evening. The idea of such a conference is excellent, and we hope that other associations will join the movement next year.

THE annual meeting of the Incorporated Association of Headmasters will be held in the Guildhall on January 7th and 8th, under the presidency of Canon Swallow, until recently headmaster of Chigwell School. The members will dine together at the Trocadero Restaurant at 7 o'clock on January 7th; and the annual sermon will be preached before the association in St. Mary Abchurch, London, E.C., at 10.30 a.m. on January 8th, by Dr. Gow, the headmaster of Westminster School.

THE Association of Science Teachers held its first general meeting on November 23rd at the London Day Training College. The meeting was well attended, and among the resolutions passed were the following: (1) That the association be called the Association of Science Teachers; (2) that the annual subscription be five shillings; (3) that anyone who holds, or has held, the post of science teacher in any college or secondary school be eligible for membership. The business meeting was followed by an interesting address by Prof. Armstrong, F.R.S., on science befitting girls, which was followed by a short discussion.

THE seventh annual report—that for 1912—prepared by the council of the National League for Physical Education and Improvement was presented at the annual meeting held under the presidency of the Lord Mayor at the Mansion House on December 10th. The report indicates that the past twelve months have been the most active and progressive in the league's history. Its work continues to extend, and its recognised power in influencing and stimulating public interest in the important subjects which it was formed to promote has shown a steady increase. The financial year began with an adverse balance of £100, which has been wiped out by special efforts aided by the generous munificence of an anonymous donor, but an increase of subscriptions is urgently needed in order to carry out the work, which, while it is as practical as it is valuable, does not make the kind of "show" which necessarily directs attention to its usefulness. The league is now amalgamated with the Mansion House Council on Health and Housing, which will henceforth form its London branch. By federation and affiliation it is also in intimate relationship with a large number of other bodies the activities of which are

directed to the improvement of various aspects of our national life. In this respect also, by taking measures to secure the harmonious and coordinate working of energies and enthusiasms which must otherwise inevitably overlap to some extent, and thus be wasted, economy of time and labour is effected, and what the engineer might describe as the "loss in transmission" is proportionately reduced. The work which the league has accomplished and is still carrying on is at once so valuable and so relatively unobtrusive that it deserves increased support, and calls for a wider recognition. In the course of the proceedings Mr. R. E. Roper urged "the need for a national standard of physical education"; it is an aim not so Utopian but that a system of national training would practically suffice to secure its realisation.

THE Teachers' Guild Modern Languages Holiday Courses in 1913 will be held at Honfleur in France, at Santander in Spain, and at Lübeck in Germany. The courses will commence in all three centres at the beginning of August. The exact day and hour of the meetings will be announced later. The courses will occupy not less than three weeks in any centre. They are specially intended to promote among English-speaking people a knowledge of the languages, customs, and ways of thought of the countries visited. They are open equally to members of the guild and to other persons. In order to ensure as much opportunity as possible of speaking the language of the country, careful arrangements are made by which the students board with private families in parties not exceeding four. The lectures, classes, and conversation circles are planned with the view of affording the greatest amount of practical benefit to all. A handbook giving full details of the courses will be issued next March; meanwhile information can be obtained from the Teachers' Guild, 74 Gower Street, London, W.C.

THE report of the Bradford Education Committee for the sixteen months ended July 31st last provides interesting evidence of the completeness of the educational system of the city. It is worthy of note here that there are thirteen public secondary schools in Bradford—six for boys and six for girls, and one (Thornton Grammar School) for boys and girls. All are recognised by the Board of Education as secondary schools, and are in receipt of Government grants. The schools contain altogether more than 3,000 boys and girls. The population of Bradford is estimated at 200,000, and after allowing for 410 scholars who reside outside the city boundaries, the ratio of secondary-school pupils to the population of the city is 9·8 per thousand, a proportion which is very creditable. The free places in the municipal secondary schools, with their 2,000 pupils, equal 65·5 per cent. of the number of pupils on the roll.

THE development of Western Canada is so rapid, and the inrush of settlers so great, that considerable difficulty is experienced in finding sufficient teachers and in providing school accommodation and equipment quickly enough. Good young English teachers are in constant demand. It appears that salaries in

the rural districts vary from £130 to £150 a year of 210 days. Board can usually be obtained at the cost of from £2 8s. to £3 4s. a month. The greatest demand for teachers is in the months of March, April, and May, when the "short term" schools are opening. In city, town, and village districts the salaries of teachers vary from £120 to £200 per year in the junior department, and from £200 to £400 per year for senior departments and principalships.

WITH regard to the recognition in Canada of certificates and diplomas obtained in the United Kingdom, it may be stated that holders of degrees in arts in British universities who have had a two years' training at a recognised training college are granted interim first-class certificates. Teachers who have taken this training, but are without a degree in arts, will be granted interim second-class certificates. These certificates may be made permanent after one year's successful training. Teachers from the United Kingdom wishing to obtain standing in the provinces of Saskatchewan and Alberta should request the Board of Education, Whitehall, or the office of National Education, Dublin, to forward to the Provincial Department of Education concerned official evidence of good moral character, a report of an inspector, and an official statement as to the validity of their certificates. Applicants then need forward only their certificates for identification to the Departments of Education at Winnipeg for Manitoba, Regina for Saskatchewan, or Edmonton for Alberta.

THE offer of proprietors in Nova Scotia to ship coal to the Thames for gas-making purposes in competition with the northern and midland supplies should be of interest to teachers of geography. The coal measures of Nova Scotia are 4,000 square miles, the best and richest of which lie in Cape Breton on the seaboard. The coal is of high quality, and is obtained in these collieries at a lower cost than anywhere else in North America. Moreover, as a shipping point Cape Breton is barely 2,000 miles from the United Kingdom, and lies in the direct line of navigation between northern Europe and the great ports of North America. The present output of coal in Cape Breton is six million tons a year, and is rapidly growing. About one-half of this production is absorbed by the great iron and steel works which have been established at Sydney, the balance being supplied to Montreal and other points on the St. Lawrence, to the West Indies and to Boston.

THE last issue of *Science Progress* contains three articles on the origin of life, which will appeal to all thoughtful students, more particularly if they have already studied Prof. Schäfer's address to the British Association on the same subject. Dr. Haldane discusses the relation of mind and body, and concludes that conscious personality is the truth of the body and its environment, the physical causes which seem to determine the mind being only superficial appearances. Prof. Minchin, discussing the question from the physiological point of view, pleads that chromatin, the nuclear substance, is the all-important and essential constituent of living organisms, and that the earliest

forms of life were extremely minute ultra-microscopic particles consisting of chromatin. Prof. Armstrong's article, which is in part of a critical character, sums up the evidence which chemistry is able to give, and shows that chemists have already made very definite progress in the study of life. The articles between them cover the subject in the widest possible manner.

*The History Teacher's Magazine* (McKinley, Philadelphia, U.S.A., 20 cents a monthly copy), which was originally published as a private venture, has now been officially adopted as the organ of the American Historical Association, and has been placed under the control of a strong editorial board. It has necessarily gained in authority, and in value. Among the outstanding features of the issues for September, October, and November last—the first three of a new series—are: (1) an excellent selection of historical diagrams and facsimiles, including a reproduction of a sheet of *The Baltimore Patriot*, on which is shown the first published version of Key's "Star Spangled Banner," various pictures illustrative of slavery in America, and the original plan for the city of Washington, issued in 1792; (2) suggested syllabuses of courses of study in English, European, and American history; (3) outlines of model lessons on historical subjects; (4) reviews and book lists, the latter being particularly valuable to English readers, because they contain the titles of American publications not otherwise easily accessible; (5) collections of typical examination questions in different departments of history.

WE have received a copy of the first issue of a new monthly magazine for boys which is called *The Champion*. It is published by Messrs. Odhams, Ltd., 93-4 Long Acre, London, and its price is 3d. net. It is not easily possible to predict what will prove popular with boys, but we shall be surprised if *The Champion*, with its generous supply of fiction, its articles on games and sports, and its abundant illustrations, does not soon secure a wide circulation.

#### SCOTTISH.

THE Lord Advocate, Mr. Alexander Ure, M.P., speaking at the opening of a new school at Tyne-castle, Edinburgh, stated that, in his private capacity as a parent and a ratepayer, there were two important aspects of the social organisation which he, a convinced democrat, would not entrust to the democracy. These were sanitation and education. In regard to the former, he whimsically maintained that everybody had a constitutional objection to washing themselves. Cleanliness was a late and quite unnatural development of civilisation, and it required the strong hand of an outside authority to maintain an adequate standard of sanitation! There was, he maintained, in the hearts of all young people, the same deep-rooted objection to education, and here, too, efficient administration could only come from an authority outside the members of the democracy. He further declared his belief that the public were well served by the present system of educational administration. The fact that so few people took any interest in school board elections was, he thought, evidence that they had confidence in what was being done for them.

Such criticism as was directed against the system came, not from anxious parents, but from faddy bachelors and cantankerous old maids. All this reads like rank heresy from the lips of the high priest of robust Radicalism. If the people are not to be trusted with the management of education, one would like to know how they can be expected to take part in the higher reaches of politics, of which education, rightly considered, is a part?

A MEETING of the Association for Securing Higher Education in Scottish Rural Schools was held recently in Glasgow. The attendance was large and representative of all parts of Scotland, and of all classes in the community. Emeritus Prof. Ramsay, president, occupied the chair, and among others present were the Rt. Hon. James Caldwell and the Rt. Hon. Parker Smith. The president, in his opening address, gave some striking instances of the disabilities under which the pupils in rural districts laboured now as compared with ten and twenty years ago. He was quite prepared to grant that the Department had done excellent work in the establishment of higher grade schools and in encouraging the secondary schools, but they had done so at the expense of the ordinary public school. Many of the Department's inspectors seemed to consider that higher education in country schools was a weed that should be ruthlessly eradicated instead of a tender plant that should be carefully nurtured. The Rt. Hon. Parker Smith said that the present system, by which young children had to be lodged in towns that they might receive the benefits of higher education, combined all the disadvantages and none of the advantages of the boarding-school system. Between the case as stated by the association and the facts as given in the House of Commons by the Secretary for Scotland there is such a direct conflict of evidence that, as Sir Henry Craik recommended, the only way to settle the matter is to have an independent inquiry by a Royal or other special commission.

AN important and far-reaching decision has been given by the Court of Session on the question of the medical inspection and "treatment" of school children. The case was raised by the School Board of Glasgow in order to determine whether it was within their power to spend money raised by rates in providing medical and dental treatment for school children. The Education (Scotland) Act of 1908 expressly provides for the "medical examination and supervision" of pupils, and certain school board authorities, encouraged by the Education Department, were interpreting "supervision" as being equivalent to "treatment." The Court of Session has decreed unanimously and emphatically that school boards under the Act of 1908 have no power to employ the rates in providing medical treatment, and that any minute or circular of the Department which professed to confer that power upon boards would be *ultra vires*.

THE annual meeting of the Scottish Modern Language Association was held this year in Edinburgh University. The retiring president, Dr. J. Pettigrew Young, St. Andrews, in the course of his address, discussed the possibility of a change in the

conditions of the University Preliminary Examination, whereby it might be brought more into line with the Leaving Certificate Examinations, which were educationally on a much higher plane. Dr. Schlapp, Edinburgh University, said that a movement was going on in the University Courts to institute a reform of the Joint Board, which, it was proposed, should be replaced by two boards, a superior board of business men, who knew nothing of the individual subjects of examination, but would deal fairly and faithfully with all. The other board would be an examination board, pure and simple, and on matters of procedure would take its instructions from the superior board. Dr. Schlapp condemned the proposal as retrograde, and asked the association to take all necessary steps to defeat it in the event of it being brought forward.

THE autumn meeting of the Classical Association was held in Edinburgh University under the presidency of Dr. Heard, Fettes College. Dr. Heard, in the course of his presidential address, dealt with the dangers besetting present-day education. One of the gravest was that of aiming at nothing higher than mediocrity of attainment in a large number of subjects. In consequence there was no ideal before the mind of what knowledge really was. The study of the classics, as of every other educational subject, required time, and the whole tendency was to cut down the time, and study Latin and Greek in snippets. Dr. Heard referred to the case of a girls' school in England where the time assigned to Latin was two and a half hours per week, and the mistress complained that, among other things, a knowledge of hidden quantities was expected to be acquired. Prof. Hardie afterwards read a paper on what is metre and how should it be taught? and at the afternoon sederunt there was a charming address by Mr. James Curle on the Romans in Scotland.

#### IRISH.

IRISH education under the Home Rule Bill has not been the subject of much discussion in Parliament. The protest made by Dr. Starkie and the National Board in reference to the financing of primary education under the Bill has scarcely awakened an echo in the House of Commons, and secondary education has not been mentioned at all. Education, nevertheless, is one of the subjects which will be handed over completely to the new Irish Parliament, but what specific changes are likely to take place is uncertain. The position of the universities has, however, been discussed warmly in Parliament, and Dublin University is apparently to be allowed to exempt itself from the control of the Home Rule Government. Mr. Campbell, the junior member for Dublin University, claimed that he was expressing the wishes of his constituents when he asked for the exclusion of Trinity College from the Bill, and Mr. Birrell assented. The request was supported by a meeting of the Board of Trinity College by a large majority, but a vigorous protest has been offered by many of the junior fellows, as well as by a large number of the undergraduates, and whether the promise of Mr. Birrell will be modified by events is at present uncertain.

THE Queen's University, Belfast, has also put forward a claim for special treatment, and its position is altogether different from that of Trinity College. It was established under the Irish Universities Act of 1908, by which an Imperial grant is made annually to it of £28,000, and under the charter of the Act the professors and officers of the University were appointed. This £28,000 will be included in the lump sum to be transferred to the Irish Government, which will have power to repeal or alter the Universities Act, and will be able to do as it likes with the money. The Academic Council has stated its position in a memorial, of which this is one paragraph:

"The members of the Academic Council have no wish whatever to question in any way the fairness of the future Irish Parliament in their dealings towards them. They are, however, afraid that owing to the very great demands which will certainly be made on the resources of the Irish Parliament from many quarters, the Irish Government may be placed in a position of financial difficulty, and may consider that it is necessary to reduce the grant to the universities. Large sums of money will be required to improve the efficiency of both secondary and elementary education, and it may be thought necessary to transfer some of the money, at present allotted to the universities, to other branches of education."

To this memorial the Chief Secretary has given an assurance that the interests of the University will be protected adequately, and the Senate has put forward a request that no changes shall be made in the constitution, rights, or privileges of the University without the consent of the Senate, the Academic Council, and the Convocation of the University.

THE Department of Agriculture and Technical Instruction announces that a limited number of scholarships and teacherships-in-training, tenable at the Royal College of Science, will be offered for competition among students of science and technology in 1913. The scholarships are of the value of £50 per annum, and, in addition, entitle the holders to free instruction, while the teacherships-in-training entitle the holders to free instruction and an allowance of 21s. per week for the session of forty weeks. The course extends over four years. Candidates must be between sixteen and thirty years of age on June 1st, 1913, and have either been born in Ireland or resident there for three years. They must satisfy the Department in English and one other language, but the competition will be limited to mathematics, science, and drawing. Entries must be made before April 30th.

THE autumn issue of the Journal of the Department deals largely with the foot-and-mouth disease, and has instructive articles with maps and tables illustrating the spread of the outbreaks of 1910-11 on the Continent, and of 1912 in England and Ireland. There is also another article in continuation of the series dealing with technical instruction in Ireland, describing recently established technical schools. The present article relates to the Technical School at Larne, a new building; it is contributed by Mr. T. Clearkin, the secretary of the Larne Technical Instruction Committee, and is fully illustrated.

THE interest taken in Ireland in the pronunciation of Latin has very largely increased in recent years through various circumstances, particularly the action of the Irish Classical Association in directing attention to the need for some uniform system, and also the spread of the reform system of pronunciation in England. A sign of the times in Ireland may be seen in two valuable articles in *The Irish Educational Review* of October and December, by Dr. Sheehan, professor of Latin in Maynooth, and one of the Commissioners of Intermediate Education, dealing with "Hidden Quantities in Latin," a point in Latin pronunciation not hitherto much dwelt upon in Ireland. The articles contain an excellent summary of the facts.

#### WELSH.

IN connection with the "World's Fair" to be held at San Francisco in 1915, it is proposed to hold an international eisteddfod. An organising committee of prominent western American Welshmen has been appointed, and it has suggested the name of the "Panama Pacific International Exposition Eisteddfod," to celebrate the opening of the Panama Canal. A board of management was appointed, and articles of incorporation drawn up. It was stated that £10,000 would be offered in prizes, and the chief choral prize of £2,000 would be the largest eisteddfod prize ever offered. It is proposed that the eisteddfod should be world-wide in scope, and its objects would be to promote the cause of federating the Welsh people of America, who number 82,000 native Welsh born, to erect monuments in America to famous Welsh characters, to endow Welsh scholarships, and to promote, establish, and endow any institution of an unsectarian character for the education of Welshmen in America from the eisteddfod proceeds. It was recommended that the Panama Pacific Eisteddfod be held under the patronage of the National Eisteddfod Association of Wales. Offers of liberal support have been received from several parts of the United States. Mr. D. Lloyd George (Chancellor of the Exchequer), the President of the United States, and the Governor of California will be invited to act as respective presidents at the eisteddfod sessions.

THE President of the Board of Agriculture has been to Wales to attend the meeting of the first Welsh National Agricultural Council under the Development Act, held at Aberystwyth. He proceeded to Cardiff, and there received deputations from Cardiff and other South Wales borough and county councils, which made appeals for financial assistance towards the establishment and maintenance of a department for higher agricultural education at the University College of South Wales and Monmouthshire. The University Colleges of Aberystwyth and Bangor, it is well known, already have such departments. The deputation also sought aid towards the establishment of a farm institute for Glamorgan. Mr. Runciman explained that he had sent out inquiries to every county in England and Wales for particulars of the money spent on agricultural education by them, and that out of all the counties Glamorgan was the only one which did not reply to his letter. He strongly urged local

people to support more effectively the South Wales University College, since local support strengthened the claim for grants. At Abergavenny, Mr. Runciman praised the agricultural education of the county, and said that the Development Commissioners would give £3 for every £1 spent on such education.

A MEETING of old Aberystwyth College students has been held at Manchester to help the Welsh National Library, with the object of collecting printed and manuscript "relics" of college days. These will include, it is suggested, old programmes of college societies and eisteddfodau, social and athletic gatherings, manuscript newspapers published in the students' common-room, notebooks of lectures, copies of topical verses, and photographs of college committees, athletic teams, &c. It was stated that the National Library contained a complete file of *Aberystwyth College Magazine*, which would be invaluable when the history of the Welsh University came to be written. But it was not the future historian alone who would be grateful if the library were endowed also with an old students' corner, containing documents to illustrate the development of the colleges. A resolution was passed, requesting the Lancashire Association of Old Students to notify to its next meeting any printed or written relics of Aberystwyth which it would be prepared to present to the National Library.

At the last meeting of the Court of the University of Wales a communication was read from Welsh teachers asking the Court to reconsider the standard of examination in the Welsh language at matriculation. It was urged that candidates taking Welsh suffered by comparison with those taking the French language, *i.e.*, that a larger percentage of candidates passed who took French than those who took Welsh. The matter was referred by the Court to the Senate for consideration. At the same meeting the registrar submitted a report on the examinations of 1912, which showed that 261 entered for the July matriculation examination, being 128 below the number in the preceding year, while 147 entered in September, or 94 less than in the previous year. The percentages of passes were 41 and 32. The percentages of failure in July and September were 59 and 68, as compared with 61 and 57 in the previous year. There had been a diminution in the number of candidates since 1909, culminating in a heavy drop in 1912. The number of candidates entering for the higher degrees was: twenty-six for M.A., seven for M.Sc., one for M.Mus., two for D.Sc., one for D.Litt., and twenty-five for the B.D. examination.

We welcome heartily the series called "Oxford Industrial Readers," by A. O. Cooke (Frowde). These illustrated booklets tell in very interesting fashion of *A Day with Leather Workers*, *A Visit to a Woollen Mill*, *A Visit to a Cotton Mill*, *A Day in a Shipyard*. They are capable of indefinite extension, but we hope the editor will not make them too technical. Each book contains about eighty pages, and in the hands of teachers who have seen, and intelligently seen, the places themselves should be most useful. The romance of activity has scarcely yet reached the schools.

## WHAT IS A STANDARD SCHOOL GEOGRAPHY?

- (1) *The World*. Anon. Our Own and Other Lands Series. 380 pp., maps and illustrations. (McDougall's Educational Co., Ltd.) 2s.
- (2) *Europe*. By J. F. and A. H. Chamberlain. The Continents and their People Series. 258 pp., maps and illustrations. (New York: The Macmillan Co.) 3s.
- (3) *Man and his Conquest of Nature*. By Marion I. Newbigin. vi+183 pp., maps and illustrations. (Black.) 2s.
- (4) *A Class-book of Physical Geography*. By A. T. Simmons and E. Stenhouse. viii+436 pp., maps and illustrations. (Macmillan.) 4s. 6d.
- (5) *The Sea Road to the East*. By A. J. Sargent. 124 pp., maps and illustrations. (Philip.) 1s.
- (6) *The Marlborough Country*. Notes on Sheet 266 of the one-inch Ordnance Survey Map. By H. C. Brentnall and C. C. Carter. 171 pp., maps and illustrations. (Clarendon Press.) 2s. 6d.
- (7) and (8) *The Elementary Geography*. Vol. v., North America, and vol. vi., The Three Southern Continents. By F. D. Herbertson. 152 pp. and 186 pp., maps and illustrations. (Clarendon Press.) 1s. 6d. and 1s. 9d.
- (9) *A First Book of General Geography*. By B. C. Wallis. Maps and illustrations. (Macmillan.) 1s. 6d.

THERE are certain standards which a school geography should observe if it is to find favour in the schools of to-day. To begin with, it must be accurate and up-to-date. It must lay great stress on cause and consequence, especially from the point of view of man and his environment, emphasising at the same time the correlation between geography and history. Its style should be interesting, but avoid what one may call the reader-pure-and-simple type. To satisfy alike the energetic teacher and the watchful inspector, it should contain exercises for practical work and for cultivating powers of observation. Moreover, it should show pictures which really illustrate its text, and simple sketch-maps which elucidate its teaching.

And while this is the positive side of the ideal school geography, there is a negative side, which is quite as important. It must not be too expensive, and it must not be too long. It must avoid prolixity, or it will obscure essentials, which is the commonest fault (or misfortune?) of the really interested teacher himself. It must, on the other hand, beware cataloguing, or it will encourage mnemonic rather than rationalistic teaching.

How far this ideal standard is attained by the nine books listed above depends in the end upon the man, or woman, who uses them. Certainly there is not much to carp at in any or all of them, though not one singly—like the individual teacher!—is perfect. This makes a great feature of one point, that of another; it is for the teacher to provide the requisite supplement. Presuming, then, that these new geographies are all satisfactory—more or less—and up to the twentieth-century standard of school geographies, it only remains to indicate the special features of each.

McDougall's "World" (1)—adapted for, say, the middle school—divides the world into the usual continental headings, subdividing each continent into combined physical and political areas thus:—"The Build of Asia," "The Rivers of Asia," "Where the Turk Rules," "The Holy Land," "Iran," and so on. The book is of the "reader type, and therefore rather sketchy from the teacher's point of view. The pictures—and there are many—are excellently presented, and the coloured maps are simple and speaking. The black-and-white sketch maps are not so satisfactory. Many of them are not needed in face of the

numerous good and cheap atlases now published; some are scaleless, and others perpetuate the unconvincing system which represents highlands by "snakes" and "caterpillars." The correlation of history and geography is continually emphasised, and there is much interesting matter. We have never read a better short account of the Panama Canal. Two defects are notable: there are no exercises, and there is no index.

The Chamberlain "Europe" (2) is an elementary regional geography, written from an American point of view, in American "English" and American "spelling." It may be described as a sort of chatty guide for children rather than a geography. There are no exercises."

"Man and his Conquest of Nature" (3) is almost a commercial, or rather an applied, geography, and is adapted to such sixth form or matriculation boys as take more than the ordinary interest in the subject. Its title sufficiently explains its scope and object. It is essentially a *human* geography, and it rightly boasts of its "humanity." "It is no part of the work of Geography," writes the author, "to lay down rules as to the best solutions of particular problems of land utilisation, but it is her work to set forth as clearly as may be the conditions which reign at different parts of the earth's surface, for a consideration of these furnishes the raw material upon which all political and social judgments must be based" (p. 174). The idea underlying this statement is far removed from that old view which considered the whole use of geography was to tell us where places are. Causes and consequences naturally are strongly emphasised in every chapter. If pictures were needed for a book of this type, we think that more care should have been expended over their production, and we should have liked to see here and there a set of exercises, or even questions, on its subject-matter.

Simmons and Stenhouse's "Physical Geography" (4) is essentially a "practical" work of the type familiarised in the books of Simmons and Richardson, Wallis, Davies, &c. It, too, strongly strikes the *human* note, and is to be commended therefor. Its great feature is the prominence given to exercises and questions throughout its three sections: maps and astronomical geography, land and sea, climate.

Sargent's "Sea Road" (5) consists of six lectures describing the ordinary sea route from Gibraltar to Wei-hai-wei, and is written round—so to speak—the set of lantern-slides carefully prepared under the supervision of the Visual Instruction Committee of the Colonial Office. This means an outlay of £20-£30 if the whole 370 slides be purchased, a few only of which are introduced into the body of the book. The slide numbers are indicated in the margin of the text.

"The Marlborough Country" (6) is an example of excellent local work in geography. It is not necessarily a teacher's book at all, nor is it adapted for any special examination, though it may be used for both purposes. It is just the sort of book an ordinary man, who is interested in things geographical and is staying in the Marlborough country, would buy and enjoy in conjunction with the indispensable ordnance map of the district. Attention is directed to the why and the wherefore of those things which a guide-book simply notes as worth seeing, to wit: water meadows, lynchets, sarsen stones, white horses, dewponds; to the geographical "controls" which have placed Marlborough and Calne (the only two boroughs in the map) where they are; and to the history and geography combined in place names, such as St. Anne's and Walker's Hills. There are a number of capital sketch maps and illustrations, and many exercises and questions.

Mrs. Herbertson's *Elementary Geographies*, (7) and (8), are the last two of the Continental volumes in the series of Oxford geographies edited by Dr. Herbertson. The names of author and editor are at once a passport to success and a guarantee to efficiency. The standard of work is slightly in advance of the preceding volumes, but nowhere is it too difficult for its young students. Environment and its influence on man is the principal theme; plant geography, for example, is nothing but applied climate. All is worked in simple style from the strikingly coloured maps on the inside covers to the illustrative pictures and their explanatory notes. There are plenty of exercises.

Wallis's "First Book" (9) is one of a series of "First Books of Science." As such it contains much introductory matter provocative of ideas and suggestive of outlook. The first three chapters are on maps, the next seven on the regions of the world arranged according to physical conditions, and the last seven on the continents politically considered. There are many exercises and many maps.

### THE TRAINING OF CHARACTER.

(1) *Ethics and Education*. By J. Howard Moore. viii + 188 pp. (Bell.) 3s. net.

(2) *Character Training*. By E. L. Cabot and E. Eyles. 384 pp. (Harrap.) 3s. 6d. net.

(3) *Scripture Teaching in Secondary Schools*. Edited by N. P. Wood. xiv + 73 pp. (Cambridge University Press.) 1s. 6d. net.

(4) *The Girl's Book about Herself*. By Amy B. Barnard. 224 pp. (Cassell.) 3s. 6d. net.

(5) *Aysgarth School Sermons*. By the Right Rev. C. H. Boutflower. viii + 110 pp. (Macmillan.) 2s. 6d.

(6) *A Scheme for the Correlation of Certain Subjects of Instruction in Subordination to the Aim of Character-training*. By F. J. Gould. 4 fcap. pp. (Moral Education League.) 6d. net.

MR. MOORE, who is instructor in ethics at the Crane Technical High School, Chicago, has written a provocative and fascinating book (1). It will probably shock more people in this country than it will attract, for the author is a relentless foe of tradition and convention. But his style is too breezy and his thought too alive to permit any likelihood that he will not be read. "Evolution" and "Biogenesis" are the key-words of his teaching. He lays down the challenging postulate, "Nothing is too sacred to be improved." He would have the child and the man act in the light of present-day conditions, not hark back to some antiquated precedent. "Judges and lawyers are worse ancestor-worshippers than the Chinese." Believing human history to be one long record of disillusionment, he would have the young taught, not only to think, but to doubt. He goes the whole way in the science of eugenics, and, could he but make the laws, he would produce a race of supermen. He is a close follower of Kant, whose ethical philosophy he thus interprets: "Act as you would wish all men to act, that is, in such a way that if your conduct were universal all would be well." From this starting-point the author naturally reaches the conclusion, "No solution of anything is final unless it is made in the interests of the universe." Mr. Moore has undoubted knowledge of the heart and mind of youth; for youth he has ever a sympathetic and reverent regard; his flippancies fall only on what he believes archaic and obsolete. A full and suggestive scheme of ethical culture and a bibliography conclude the book.

Of quite a different style is the English edition of

Mrs. Cabot's "Character Training" (2). It is a course of moral instruction designed to cover the eight years of a child's life from six to fourteen. The successive topics for the years are Helpfulness, Home Life, Work, Golden Deeds, Loyalty, Friendship, Patriotism, and Choosing a Calling. Each topic is arranged under subdivisions for the months. Bible stories, classical stories, biographies, fairy tales, and heroic incidents form the chief material of the book. Two short lessons a week—for very young children a few minutes every day—are recommended. Useful directions as to supplementary material are given with every lesson. The author remarks that she has but aimed at raising a scaffolding for the greater mansion the teacher will build. She rebuts the idea that moral lessons are given children to restrain their inherent badness; rather they are given to help their unreleased goodness. Such lessons must not be over-serious. "A good laugh is often far more effective in moral training than a bad scolding." And again, "The instinct of a child is to love a story and to repel a moral." Mrs. Cabot has selected and adapted her material with much skill. Mr. Eyles has made it thoroughly suitable to the English child, and the book is a distinct acquisition to the school ethical library.

The papers read at the recent Conference at Cambridge on Scripture Teaching in Secondary Schools have been published in book form (3). Mr. Wood, who edits the volume, tells us the common purpose of the contributors is to discover the best methods of Biblical instruction in the light of modern scholarship. Prof. Burkitt, in a preface, lays the emphasis in the right place when he points out that no Bible teaching is profitable unless the teacher is good enough. We cannot enter in detail into the papers, but the names of the contributors, which include Dr. Swete and the Headmasters of Merchant Taylors', Bradfield, Plymouth, Bishop's Stortford, and Leighton Park, are a sufficient indication of the versatility and quality of the matter. Canon Kennett raises an important point as to the advisability of making the Bible books into class text-books; but to say "the 'Cambridge Bible for Schools' is responsible for a large amount of religious indifference" is to confound the tools and the workman—to overlook Prof. Burkitt's dictum that all depends on the teacher.

Miss Barnard's "The Girl's Book about Herself" (4) is similar in get-up to her previous volume, "Talks with Children about Themselves." Delicate and intimate things, dear to the heart of a girl, are here discussed with unusual good sense and breadth of sympathy. Miss Barnard's ideal girl is very wholesome and very much in earnest; she cultivates bodily fitness, mental activity, self-discipline, seizes on opportunity, and, above all, regards her life as a service to others. One of the finest chapters (every girl should read it) is "Fathers and Daughters." Miss Barnard is "full of wise saws and modern instances," and possesses a peculiar aptitude for inspiring young womanhood. Her allusive, collative, and ethical manner mark her out to do for young women what Samuel Smiles did for young men, only without Smiles's more glaring defects.

The reprint of Bishop Boutflower's Sermons preached to the boys of Aysgarth School (5) will be welcome to the limited circle who, on personal grounds, will wish to possess the slender volume. For them the first sermon, on the school motto, "Ex quercu, non ex salice," will have a special interest. In tone the eight sermons are all that could be desired, while they have the added merit of being spoken in language understood of boys.

Mr. F. J. Gould, of the Moral Education League, has once more rendered a valuable service to the

cause so near his heart. Though consisting of but four closely packed large pages, we have in this Scheme (6) the sum and substance of a cyclopædia. The scheme is so condensed already that to attempt to summarise it would be to attempt to bovrilise Bovril. History, geography, language, literature, art, science, and sociology are all brought under contribution. The object of the compiler can best be seen in his own words: "The scheme is not a correlation scheme in the current sense of merely joining subjects harmoniously together: it correlates subjects so as the more readily to lead up to the ideal of the good and just individual and of social service." The publication is eminently suggestive and well worth the attention of schools, even though its lines be but loosely followed.

### RECENT PEDAGOGY.

(1) *L'Année pédagogique* (1911). Publiée par L. Cellérier et L. Dugas. 487 pp. (Paris: Alcan.) 7-50 francs.

(2) *Peter Ramus and the Educational Reformation of the Sixteenth Century*. By F. P. Graves. 226 pp. (Macmillan.) 5s. 6d. net.

(3) *Pestalozzi's Educational Writings*. Edited by J. A. Green and Frances A. Collie. (Educational Classics Series.) 328 pp. (Arnold.) 4s. 6d. net.

(4) *Froebel's Chief Educational Writings*. Edited by S. S. F. Fletcher and J. Welton. (Educational Classics Series.) 246 pp. (Arnold.) 4s. 6d. net.

(5) *Fundamentals of Psychology*. By B. Dumville. 382 pp. (Clive.) 4s. 6d.

(6) *Teaching in School and College*. By W. L. Phelps. 186 pp. (Macmillan.) 4s. 6d. net.

(1) The "Année pédagogique" (1911) is a new bibliographical annual devoting itself to education. It proposes to give to the French reader a précis of all the best published work in that subject, not only in France, but in every country. It is noticeable that the editors of this work assert that Germany and France pay far more attention to pedagogical literature than the Anglo-Saxons. We are told that the number of newspapers, reviews, and other periodicals treating of education printed in Germany count up to more than 400. For France the claim is made that excellent reviews keep the public in touch with pedagogic questions, and that a number of these reviews must be placed in the first rank, "for the conception of their mission which they place before themselves, and the manner in which they realise it." France is distinguished by its bibliographical work, as, for instance, by its publication of "L'Année biologique," "L'Année philosophique," "L'Année psychologique," and "L'Année sociologique." It was fitting that "L'Année pédagogique" should follow. On the whole, it is worthy of the series mentioned. There are more than 2500 books or articles described, with a length proportioned to their importance, divided into fifteen main sections. The leading articles of the educational reviews of Germany, France, England, and the United States are included for notice. What we should like to see would be a really international bibliography, in which experts from each country furnished their own lists. It should be noted that in "L'Année pédagogique" there is little, if any, notice of Holland, Italy, Spain, Russia, and Scandinavia. The bibliography is accompanied by valuable articles from MM. Boutroux, L. Cellérier, and L. Dugas.

The historical works in the list, (2) and (3), on Ramus and on Pestalozzi respectively, are both of considerable, though of different, value. Prof. Graves's book gives the results of a great deal of

reading and study, deals with a very interesting but little-known man, is well written, and is excellently printed in large type, with well-leaded spaces between the lines. It just gives the information most to be desired with regard to Peter Ramus, and includes an interesting portrait. Prof. Green's work on Pestalozzi is on a different model. Aided by Miss Frances A. Collie, he has furnished his subject-matter with a judicious selection and translation of Pestalozzi, from "How Gertrude Teaches her Children, Views and Experiences," "Address to My House" (1818), "Letters to Greaves," and the "Swansong." It is therefore emphatically a student's book. The reader is taken, under guidance, to the most representative works of Pestalozzi, and can gather for himself the essential principles of Pestalozzian teaching. This is just what ought to be done. It has been done in Germany, and anyone who has attacked or even looked at the twelve volumes of Seyffarth will recognise how utterly impossible it is for the student, even the advanced student, to master the voluminous works of Pestalozzi. The crabbed language, lack of compression, and absence of literary style, make Pestalozzi almost impossible in the original for English readers. Prof. Green and Miss Collie have done their work well. There is a useful chronological table, and an introduction of fourteen pages. Pestalozzi's main teachings are now accessible, and the future student should be grateful for the ease with which he will now be able to approach so nearly to Pestalozzi's views.

Similarly with regard to the Froebel (4) in the same series of "Educational Classics," Dr. S. S. F. Fletcher and Prof. J. Welton join in editing an attractive volume for the English reader who desires to read Froebel without wading through the tiresome German. The selections are carefully chosen, and the editors deserve gratitude for endeavouring to give "the exact meaning but not his own phraseology." The volume will appeal to educationists who are not kindergarten teachers, as well as to the professed Froebeliens.

Mr. Benjamin Dumville has written a book (5) on the "Fundamentals of Psychology." There is naturally a good deal of reference to the standard works of Prof. William James and Mr. McDougall. The writer shows great teaching sympathy, and the series of questions at the end of each chapter are helpful and stimulative.

"Teaching in School and College" (6) is a book written by a man of wide experience, Dr. W. L. Phelps, professor of English literature at Yale, formerly instructor in English at Harvard, and once "instructor" at Westminster School. There is much enthusiasm in the essays, and perhaps more fervour than the English reader likes to see in print. The author says: "My book is perhaps confessional rather than hortatory; for that very reason it will irritate some, and help others."

The books noticed in this article are very varied, and variety is a characteristic of the educational progress of the time. But the very attempt of "L'Année pédagogique" to classify and organise, and at the same time describe, the output is an earnest of the advent of systematic and thorough study of the subject.

We are glad to see that Mr. McNair has published the first part, down to 1485, of his useful and stimulating *Guide to the Study of English History* (Alston Rivers; 1s. net), and that Mr. Terry has added a second volume to his *Short History of Europe* (Geo. Routledge; 3s. 6d. net), both of which we have commended in previous numbers of THE SCHOOL WORLD. Mr. Terry's volume extends from 1453-1806. He promises a third volume on the nineteenth century.



## RECENT SCHOOL BOOKS AND APPARATUS.

**Classics.**

*An Elementary Latin Exercise Book.* By H. G. Ford and L. V. Cauldwell. xiv+230 pp. (Methuen.) 2s. 6d.—This book, a companion to Mr. Ford's "Latin Grammar," is meant for a two-years' course from the beginning, and contains a vocabulary of 720 words, all from Cæsar. Each term has twelve lessons; each lesson has one explanation, one vocabulary, two English-Latin exercises, and one Latin-English exercise, all being disconnected sentences. Vowels long by nature are marked, except final *i* and *o* and concealed longs; the authors think that a vowel can be "made long by position" (p. vii.) This sketch will show those teachers who believe that a foreign language ought to be brought in touch with the learner's feelings and thoughts, that this book is not for them. What follows, then, is addressed to those who think thoughts of this type suitable for the boyish mind: "The race of goats has a small body and a beautiful head, They will have announced the keen battle to the sad women, Swift horses carry heavy charioteers, Did they hear their mothers' brothers? They were hurling long darts with great rapidity." We thought those darts would appear before long. Now let us look at the "explanations." These, of course, are a short form of what the master says to his class; they belong to the master's book, not the boy's book. We are glad to testify that they are clear and simple; for example, the introduction to the passive voice (p. 39). The gradation of work is even, and there is not too much done at a time. But much greater merits would not reconcile us to a book of nonsense—for these sentences will be nonsense to the boy—in which the exercises English-Latin are half as many again as the exercises for reading.

**English.**

*English Essays, 1600-1900.* Selected by S. V. M. and B. H. Blackwell. 440 pp. (Frowde.) 1s.—This was worth doing, and we are grateful for the names of Francis Thompson, Mary Coleridge, and Owen Feltham, among the crowd of stars which for a long time have shone in anthologies. It is easy to suggest other essays; we look in vain for Earle's "Child," Lamb's "Dream Children," De Quincey's "Joan," Froude's "Job," Stevenson's "Dreams"; but this only means that all readers have their favourite essays. Another little book of the same stamp is "English Prose from Mandeville to Ruskin," arranged by W. Peacock (530 pp.), with notes. It comes from the same publisher, and is priced at 2s. 6d. The two books are quite a treasure house, and there is none, or little, of the overlapping which might have been expected.

*Chaucer Selections.* Edited by O. F. Emerson. 256 pp. (New York: The Macmillan Company.) 3s. 6d.—This is an attempt to get the smaller poems known, and, with the exception of the Prologue, Prof. Emerson takes less known work. It is not easy to understand why anything from "The Monk's Tale" is printed, but all else is well chosen. A long introduction and a full glossary are added. The placing of diacritics under unsounded *e*'s is disconcerting. We were just getting accustomed to another method. No word as to Chaucer's peculiar charm and acknowledged greatness appears anywhere—let us hope if this book is for schools that the teacher will supply it.

*Business Methods and Secretarial Work for Girls and Women.* By H. Reinherz. 89 pp. (Pitman.) 1s. net.—The Junior Bursar of Girton has written an excellent book. Its purpose is to replace, if possible, the technical business training which so many women engaged in social and philanthropic work have had to miss. A few headings taken at random will give the best idea of the book's scope: methods of taking copies of letters; filing correspondence; money and banking; investment of money; responsibilities of the secretary of a society; the management of meetings. A practical and readable book.

*Business English and Office Routine.* By A. Mercer. 196 pp. (Harrap.) 1s. 6d. net.—A useful book for evening and commercial schools, but scarcely for "the lower forms of secondary schools," as suggested in the preface. The first forty pages are concerned with the elements of English grammar, and the rest of the book is taken up with the usual commercial routine required by the syllabuses of examining authorities of technical institutes.

**History.**

*England's Industrial Development.* By A. D. Innes. xvi+374 pp. (Rivingtons.) 5s. net.—Mr. Innes's name is already known to the readers of THE SCHOOL WORLD as a writer of useful and readable books, and this latest production of his pen is worthy of its predecessors. He has gone to the best modern books on his subject, and simplifies, without ignoring the essentials, the story of our industry and commerce. He divides his book into three "books," devoted respectively to the Middle Ages, the mercantile period, and the industrial era, and gives, quite rightly, nearly half the space to this third section. The consequence is that the work is well adapted for the reading of adults as well as of the children in our schools, if not, indeed, more so. Mr. Innes is one of our newer writers who have perceived that what we require is the essentials, not the details, of past history in order to give space for an adequate treatment of the far larger world of which we form a part.

*Europa's Childhood and Growth.* By A. J. Berry. 281 pp. (Pitman.) 2s.—Mr. Berry calls his little book "an historical geography of Europe." It might equally be called a geographical history. In sixty chapters he leads his readers from "the earth's fires" to "the interdependence of nations," from the "dim, dim past . . . before man could find a home" to Tennyson's visions in "Locksley Hall." It is eminently readable and interesting, and is, besides, well illustrated. But its interest is that of the dictionary, somewhat disconnected. As, however, that description applies equally to the minds of boys and girls, we believe this introduction to European history is excellently adapted to their tastes and requirements. It will not do for a text-book, but should be in the school library and recommended to the younger pupils.

*A Chronicle of the Popes.* By A. E. McWilliam. xiii+487 pp. (Bell.) 7s. 6d. net.—"This volume, as its name indicates, claims to be no more than a chronicle as distinguished from a history—a simple record of facts and events rather than an attempt to discuss even briefly the causes, movements, and results to which these facts and events bear witness." So, modestly, begins the author's preface, and the reader will be grateful for the work. Reign by reign he traces the history of the Popes, from St. Peter to the

present occupant of the Holy See. On the early Popes he is duly cautious, attributing to tradition only what is not otherwise verified, and the first Pope to both of whose dates he does not affix a mark of interrogation is Anteros of 235-6. There is, beside the chronicle, a "list of chief works consulted" and of "the eccumenical councils of the Church." There are two indexes, one of the Popes and the other general.

*The New History.* By J. H. Robinson. vii+266 pp. (New York: The Macmillan Co.) 6s. 6d. net.—Prof. Robinson, of Columbia University, U.S.A., whose writings on mediæval history are known to our readers, as well as his source-books on the same subject, has apparently been working against the grain for many years, and now he has delivered his soul, not only to the societies before which he read some of these "essays illustrating the modern historical outlook," but also to his readers on both sides of the Atlantic. He thinks we study history in the wrong perspective. We forget, he says, that "history," as commonly taught, is concerned only with the merest fragment of human story, and that Aristotle, *e.g.*, is our contemporary. We forget, too, the various aspects of even this story of yesterday, or, as he puts it, of the last twenty minutes on the clock of time, and trouble ourselves about the doings of kings when we ought to be studying the life of the peoples. These and many kindred subjects are dealt with in this very modern book, written by a professor who lives in a progressive republic. Not all the things that he announces are new, but our readers will do themselves good and set themselves thinking by reading this awakening book.

*Nisbet's Self-help History Series.* By M. B. Syngé, J. Ewing, C. J. B. Gaskoin, and others. "The Tudors." 256 pp. (Nisbet.) 1s. 6d.—This is apparently the first of a series inspired by a quotation from the "New Code," which anticipates such teaching in school as will "enable the children to increase their knowledge in after years by their own efforts." It is eminently readable, and the style is deliberately easy. It is illustrated with a genealogical chart, two maps, and an abundance of good pictures, many of which are really beautiful. There is a "summary of chief dates" as well as an index, and we should think the book is admirably adapted for its purpose. There are two or three little slips, perhaps printer's errors, and two matters which rather astonished us in a book written by, or under, the supervision of so many. Warwick-Northumberland is called (p. 108) a "protector," and it is stated (p. 120) that many schools were founded in Edward VI.'s reign. Has Mr. Leach then written as yet in vain?

#### Mathematics.

*Memoranda Mathematica.* By W. P. Workman. vi+272+28 pp. (Clarendon Press.) 5s. net.—This book is one which many teachers and students will find useful. The ideal plan is that each student should make his own summary of the leading facts and methods in the subjects which he is studying, but mathematics is not a subject which can be dealt with satisfactorily in this manner by the learner. He will find such a synopsis as that contained in the book before us very much better than he himself can make. The book is not a mere collection of formulæ; there are outlines of proofs of theorems, and in some cases examples illustrating particular methods are given. The section on the numerical evaluation of roots contains more information on this matter than

is to be found in any single text-book. The book seems excellently adapted for revision purposes. The addition of a section on the integral calculus would increase its utility.

*Statics, including Hydrostatics and the Elements of the Theory of Elasticity.* By H. Lamb. xii+341 pp. (Cambridge University Press.) 10s. 6d. net.—It has been frequently stated that the ordinary text-books dealing with mechanics have little connection with reality, and undoubtedly there is much truth in the accusation. The student finds that a very large number, if not the majority, of the problems proposed for solution are nothing but geometrical or analytical puzzles, "mere curious pleasure or ingenious pain." We therefore cordially welcome Prof. Lamb's treatise on statics as one which subordinates the mathematical to the physical and practical aspects of the subject. The characteristic features of the work are the use of the theory of vectors and the prominence given to geometrical methods, in particular to those of graphical statics. In connection with the latter subject, the determination of stresses in frameworks is discussed, first on the usual assumption of the perfect rigidity of the bars, but later, in the chapters dealing with elasticity, Maxwell's beautiful method of determining the displacements when the bars are slightly extensible is explained. The subject is thus treated with a degree of completeness which will be found in scarcely any other similar work, and this serves as an example of the spirit in which Prof. Lamb has approached his task. The treatise is in every respect admirable, and is bound to rank as one of the best text-books which could be placed in the hands of students reading for mathematical scholarships.

*Geometry for Schools.* Vols. i.-iv. By W. G. Borchardt and A. D. Perrott. xiv+325+xiv pp. (Bell.) 3s. 6d.—The first volume of this geometry contains the substance of stages I. and II. of the Board of Education Circular issued in 1909. Vol. ii. treats of the properties of triangles and parallelograms, vol. iii. of areas, and vol. iv. of circles. Volumes on proportion and solids are in course of preparation. Regarding the book as a whole, the chief criticism we have to make is that it is too bulky. The preliminary course occupies fifty-two pages, and then the learner is confronted with a course of work which comprises forty-seven principal theorems, twenty-seven constructions, and thirty-three important riders elevated to the rank of theorems. In addition, there are twenty-three sets of riders, twenty-three sets of graphical questions, and ninety-one test papers. How can time be found for all this? The authors would be well advised to throw fully one-half overboard.

Criticisms of the first volume would be to a large extent a repetition of those already made upon the Board of Education Circular, but there are some statements in this part which can scarcely be allowed to pass without a word of protest. There is certainly some confusion of ideas in the statement, "we speak of the air in a pneumatic tyre, a flame, &c., as solids" (p. 1). Again (p. 10), the statement, "we must distinguish between the *sheet of paper* which is a *solid* and the *surface* of the paper which is non-material," requires emendation. It is the non-material geometrical solid which should be distinguished from the non-material surface. We have further to remark that it is not true "that all vertical lines are in the same direction" (p. 12), and that there are surfaces which are not the boundaries of solids (p. 54). The definitions of rectilinear figure and triangle are defective (p. 58).

**Science and Technology.**

*Daytime and Evening Exercises in Astronomy.* By Dr. Sarah F. Whiting. xiv+104. (Ginn.) 3s. 6d.

There are many admirable exercises in this book, suitable both for introducing the young student to celestial objects and phenomena by direct observation of the sky, and for the consideration in the class-room or study of the recorded results of investigation. A popular descriptive account of the heavens may be interesting; but as a guide to the actualities of astronomy, it is not to be compared with such a work as this, which does for the science what practical exercises are doing for instruction in geography. Though the book comes from the United States, there is much in it of interest and value to teachers in the British Isles, and no book that we know by an English author contains such a comprehensive collection of exercises. The aspiring young astronomer could not possess a more helpful volume.

*Modern Inorganic Chemistry.* By J. W. Mellor. xx+871 pp. (Longmans.) 7s. 6d.—Dr. Mellor's "Modern Chemistry" is one of the most original and suggestive text-books that have been issued in recent years. In the course of 900 crowded pages the author has been able to refer to all the topics that have interested him in the course of an unusually extensive study of chemical literature, both ancient and modern. Although actual references are not given, names and dates are quoted for all the important facts, and give an air of authority to the statements that are made. Apt quotations, not drawn exclusively from chemical literature, are scattered throughout the book, mainly in the form of chapter headings, the authorities ranging from Karl Pearson and Paracelsus at the beginning of the preface to "Sherlock Holmes" in the final paragraph of the book.

The arrangement of the book is somewhat bewildering, in part because the author has made it a text-book of physical chemistry, as well as of the more conventional inorganic chemistry. "The Laws of Nature" are discussed in a section inserted abruptly between Dalton's law of partial pressures and Charles's law of the influence of temperature on the volume of gases. "Thermochemistry" is attached, by a very weak link of logical connection, to the end of a chapter on ozone and hydrogen peroxide. A brief review of stereochemistry, and even of optical isomerism, appears under hyponitrous acid! The critical phenomena of gases and van der Waals's equation are discussed under the oxides of carbon. The classification of the elements is discussed at the close of the volume, but it is not easy to discover on what plan the elements are arranged in the book itself. The crowded character of the book and the crude appearance of some of the illustrations, together with the puzzling arrangement of the contents, may perhaps render it unattractive to the student faced with the problem of mastering its contents. But, if he is prepared to face these initial difficulties, he will find that the book is a mine of valuable information and will provide him with an equipment of knowledge which will enable him to face with cheerfulness most of the ordeals of examination that may lie before him. The low price at which the book is issued will add not a little to its usefulness.

*Elementary Applied Chemistry.* By L. B. Allyn. (Ginn.) xii+127 pp. 3s.—This volume contains a varied assortment of exercises involving the analysis of all sorts of natural and commercial products. Amongst the materials proposed for examination are soils, water, milk, baking powder, cheese, vegetable dyes, food preservatives, paints, oils, tooth and head-

ache powders. The experiments could be intelligently and accurately performed only by students who have already had considerable experience in analysis, but for such the work suggested would be both interesting and valuable.

*A Laboratory Manual in Chemistry.* By W. C. Morgan and J. A. Lyman. (New York: The Macmillan Co.) xiv+142 pp. 1s. 8d. net.—This volume is designed to supply an introductory experimental course for "the beginning student," and the authors consider that it will prove useful to teachers who wish to present that kind of chemistry which has a specially human interest. This is apparently a reference to the inclusion in the book of experiments on soap, alcohol, food constituents, dyes, baking powders, coloured fire, and similar topics. The experiments proposed, many of which are to be performed by the instructor, are numerous, and the directions are adequate.

*A College Text-book on Quantitative Analysis.* By H. R. Moody. (New York: The Macmillan Co.) vi+165 pp. 5s. 6d. net.—The main feature of this book is the extreme minuteness of the directions given for carrying out various gravimetric, electrolytic, and volumetric estimations; the description, for instance, of the operation of determining the percentage of aluminium in potash alum occupies twelve pages. All this is done with the express object of helping the beginner to escape pitfalls, and to acquire habits of correct manipulation without individual attention from an instructor. One feels, however, that the student who avoids all pitfalls merely through slavish adherence to the letter of his instructions misses much valuable experience, and it is certain that no book of directions, however minute, can properly take the place of laboratory demonstration.

MESSRS. W. AND J. GEORGE, LTD., of Birmingham, have submitted to us the improved lens-holder patented by Dr. T. J. Baker, and described in detail in Dr. Baker's letter in the last issue of THE SCHOOL WORLD (vol. xiv., p. 470). The apparatus consists mainly of two wide strips of flexible steel supported vertically on a heavy metal base. The lower ends of the steel bands are fixed in position by two small screws, which can be unscrewed so as to allow renewal, when necessary, of the rubber sleeves on the steel bands. Lenses and mirrors of any diameter may readily be clamped firmly in any position, with height above the table varied over a wide range. The stand may also be used for supporting prisms, slits, and screens. Though so simple, the stand is quite efficient, and it can be recommended as a useful addition to the equipment of an elementary physics laboratory.

*First Year's Course in Chemistry.* By James Sinclair and George W. McAllister. Pp. viii+165. (Bell.) 1s. 6d.—This volume runs on the usual elementary lines, except perhaps in one respect. All the experiments suggested in connection with the subject of each chapter are given first, and are then followed by a discussion of the results. No formulæ or equations are employed. For purely introductory work the book should be found useful.

*Experimental Science. II. Chemistry.* By S. E. Brown. Pp. viii+140. (Cambridge University Press.) 2s.—The main feature of this volume is the amount of space devoted to experiments of the usual introductory order. Much information is communicated by the way, but the consideration of such matters as formulæ, equations, and the atomic theory is relegated to a brief chapter at the end. The experiments are well chosen and clearly presented both in word and frequent illustration. Various points con-

nected with apparatus and manipulation, which are discussed *en masse* in the first chapter, would have been better left until the suitable occasion arose. A reference in the preface to the "damp and muddy ways of test-tube analysis" might well have been omitted. After all, qualitative analysis, however badly it has often been taught, is still an essential part of practical chemistry.

#### Miscellaneous.

*Our Children's Health at Home and at School.* Edited by Charles E. Hecht. 467 pp. (National Food Reform Association.) 5s. net.—This volume contains a report of the proceedings of the Conference on Diet in Public Secondary and Private Schools, which was held in the Guildhall during May of the past year, with the addition of Press notices and various communications received from a number of members of the conference and others interested in the subject. While several of the papers and discussions are both informing and instructive, much practical value attaches to the tables of school dietaries which have been supplied by schools of various types, and which range from the extremes of "meat-free" meals to those of the kind in vogue in the majority of modern schools. Such tables deserve attention, not only because of the useful hints which they supply in one direction or another, but because each institution claims that its own plan is found to be satisfactory in practice. The later communications are also not infrequently illuminating. One contributor, appalled by the sluggish appreciation of mathematical truths observed in pupils after the ordinary substantial breakfast, tried the substitution of "a light repast of coffee," with (mathematical) results much more brilliant. Possibly the reason why this "experiment" was limited to "one summer" only may not be far to seek. At least there would be an *a priori* expectation that if the foundation meal of the day be sufficiently nourishing, and of properly proportioned bulk, intellectual work of a high order cannot fairly be exacted *pari passu* with its due digestion. But why should the writer object to coffee for children on the ground that "it is a too artificial food"? Assuming for the nonce that coffee is a "food" at all, is it more "artificial" than rice or porridge, or even than bread itself? Each of these might truthfully have been described by any late eighteenth-century writer as a food "very artificially contrived." The book is well printed on good paper, and has a full index.

*Who's Who*, 1913. xxx+2226 pp. (Black.) 15s. net.

*The Englishwoman's Year Book and Directory*, 1913. Edited by G. E. Mitton. xxxi+412 pp. (Black.) 2s. 6d. net.

*Books that Count: A Dictionary of Standard Books.* Edited by W. Forbes Gray. xx+315+lviii pp. (Black.) 5s. net.

*The Writer's and Artist's Year-Book*, 1913. Edited by G. E. Mitton. (Black.) 1s. net.

The first of this selection from the excellent books of reference published by Messrs. Black is well known to most schoolmasters and schoolmistresses. The new issue is as complete as ever, and by a judicious selection of type and paper the publishers have been able to give it a compact and handy *format*. Among the biographies provided, a prominent place has been given to those of distinguished workers in the field of education—the careers of many headmasters, headmistresses, professors of education, and educational administrators being included. "Who's Who for 1913" certainly deserves an important place in the school reference library.

The first part of "The Englishwoman's Year Book"

makes a direct appeal to school-mistresses and others responsible for girls' education, being chiefly concerned with the training of girls and with particulars of careers open to them in later life. In the preparation of the book the editor has had the assistance of a committee of women experts, and the information given here will be found altogether trustworthy. It would be difficult to compile a more useful book for those in charge of girls' schools.

Teachers whose duty it is to select books for school libraries will welcome "Books that Count." The survey embraces about 5,500 books, and, though most persons who use it will consider there are some serious omissions, the lists will undoubtedly prove of great service to the student and general reader alike. We notice that in the selection of works on education the editor has had the assistance of Prof. Darrock.

"The Writer's and Artist's Year-Book" is intended to meet the needs of writers anxious to contribute to journals and magazines, and will be found full of information useful to them.

*The Growth of Music.* Part i. By H. C. Colles. vii+159 pp. (Clarendon Press.) 4s. net.—This book may be recommended to schools and colleges of music, and to those public and secondary schools able to devote a good deal of time to music, or which possess a sufficient number of keen musical pupils to tempt some teacher to spend part of his leisure time upon them. The author does not attempt to deal with each master or masterpiece, but makes a small selection of a few of the salient works of some of the greatest men, and traces the growth of musical technique by means of these. Those works are discussed which young people are likely to hear performed or which can be studied in classes. In an effective manner the author points out what influences have helped to mould the work of each master and what resources were added to the art with the birth of each masterpiece. This part takes us up to the time of Handel and Bach. The author has done his work skilfully and, within the limits he has set himself, thoroughly. At the end of each chapter is an excellent list of suggested illustrations, with full details as to publisher and price.

## EDUCATIONAL BOOKS PUBLISHED DURING NOVEMBER, 1912.

### Modern Languages.

Jules Verne, "Voyage au Centre de la Terre." Edited by C. W. Bell. (Longer French Texts.) 128 pp. (Blackie.) 8d.

Bazin, "Six Contes tirés des Souvenirs d'Enfant et des Contes de bon Perrette." (Oxford Junior French Series.) 144 pp. (Clarendon Press.) 2s.

Jules Claretie, "Pierrille." Edited by R. R. N. Baron. 184 pp. (Mills and Boon.) 1s. 6d.

"Graded Exercises in German Composition." By Josef Wicher. 320 pp. (Oxford University Press.) 3s. 6d. net.

"Massard's Series of French Readers." Junior Series. 1s. 6d. "Quatre Contes." By Prosper Mérimée. 172 pp. (Rivington.) 1s. 6d.

### Classics.

Plato, "Ion." With Introduction and Notes. By J. M. Macgregor. xxiv+46 pp. (Cambridge University Press.) 2s.

"Oxford Book of Latin Verse." By H. W. Garrod. 574 pp. (Clarendon Press.) 6s. net; Oxford India paper, 7s. 6d. net.

"Selections from Ovid." By W. D. Lowe. 96 pp. (Clarendon Press.) 1s. 6d.

"The Odes of Horace." Books I.-IV. Translated into English verse by W. S. Marris, parallel with the Latin text of E. C. Wickham. 260 pp. (Oxford University Press.) 2s. 6d. net.

**English: Grammar, Composition, Literature.**

Kingsley, "Hereward the Wake." With coloured illustrations. (School and Home Library.) 263 pp. (Blackie.) 1s.

"The Cambridge History of English Literature." Vol. ix. By A. W. Ward and A. R. Waller. xvi + 610 pp. (Cambridge University Press.) 9s. net and 15s. net.

"Key to Exercises in English Composition." By W. Murison. vi + 171 pp. (Cambridge University Press.) 4s. 6d. net.

Dryden, "The Preface to the Fables." Edited by W. H. Williams. xii + 36 pp. (Cambridge University Press.) 10d.

Coleridge, "The Rime of the Ancient Mariner." Edited by M. A. Keeling. 56 pp. (Clarendon Press.) 1s.

"Oxford Book of Victorian Verse." By Sir Arthur T. Quiller-Couch. 1040 pp. (Clarendon Press.) 6s. net; on Oxford India paper, 7s. 6d. net.

"Francis Bacon's Essays." (Select English Classics.) With introduction by Sir Arthur T. Quiller-Couch. 48 pp. (Clarendon Press.) 3d. paper, 4d. cloth.

"Perse Playbooks." II., "Poems and Ballads by Boys of the Perse School, Cambridge." With an essay on boy poets by H. Caldwell Cook. 62 pp. (Heffer.) 1s. 6d.

"Five Centuries of English Poetry, from Chaucer to De Vere." Representative Selections with Notes and Remarks on the Art of Reading Verse Aloud. By the Rev. George O'Neill. (Longmans.) 3s. 6d. net.

"The Children's Classics." Intermediate II. No. 41. "Two Little Waifs" (Abridged). By Mrs. Molesworth. 80 pp. (Macmillan.) Sewed 3½d., cloth 4½d.

The Tudor Shakespeare: "Othello." Edited by T. M. Parrott. 200 pp. (Macmillan.) 1s. net. "Twelfth Night." Edited by W. M. Hart. 158 pp. (Macmillan.) 1s. net.

"Spenser's Poetical Works." Edited by J. C. Smith and E. de Selincourt. (Oxford Poets and Oxford Editions of Standard Authors.) 803 pp. (Oxford University Press.) From 1s. 6d. net.

Shakespeare, "Complete Works." General introduction by A. S. Swinburne; note on special typographical features of this edition by T. Watts-Dunton; and introductory studies by E. Dowden. Three vols. 1603 pp. (Oxford University Press.) Cloth, 3s. net per vol.; paste grain, 1s. net per vol.

Tennyson, "Poems (1830-1870)." Illustrated edition. Introduction by T. Herbert Warren. 924 pp. (Oxford University Press.) 4s. 6d. net.

"The Pageant of English Prose." (Oxford Editions of Standard Authors.) By R. M. Leonard. 772 pp. (Oxford University Press.) From 1s. 6d. net.

Tennyson, "Poems Published in 1842." (Oxford Library of Prose and Poetry.) 300 pp. (Oxford University Press.) 2s. 6d. net.

"Preparatory English Grammar." By the Rev. Alexander Macrae. 72 pp. (Relfe.) 6d.

**History.**

Clara Tschudi, "Napoleon's Son." Translated by E. M. Cope. 330 pp. (George Allen.) 7s. 6d.

"In Byways of Scottish History." By Louis A. Barbé. 372 pp. (Blackie.) 10s. 6d. net.

"The Rise of Democracy." By J. Holland Rose. 276 pp. (Blackie.) 2s. net.

"The Indian Theatre: A Brief Survey of the Sanskrit Drama." By E. P. Horowitz. 215 pp. (Blackie.) 2s. 6d. net.

"A Source Book of English History for the Use of Schools." Vol. i., 597-1603 A.D. By Arthur D. Innes. viii + 384 pp. (Cambridge University Press.) 4s. 6d.

"Britain before the Union." (With sketch of later period.) 200 pp. (McDougall.) 1s. 3d.

"Britain after the Union." (With sketch of earlier period.) 256 pp. (McDougall.) 1s. 6d.

"British History: From the Earliest Times to the Present Day, with a History of the Over-seas Dominions." By L. Cecil Smith, assisted by R. ... Given and F. W. Bewsher. Period I., to Richard III., 1485. 240 pp. (Rivington.) 2s. 6d.

**Geography.**

"Visual Geography: A Practical Pictorial Method of Teaching for Children." By Agnes Nightingale. (Black.) 6d.

"The Junior Geography and Atlas." By W. R. Taylor. 79 pp. (Relfe.) 1s. 6d.

**Mathematics.**

"Progressive Exercises in Arithmetic and Mensuration." By James Harris and P. E. Herrick. 378 pp. (Christophers.) 2s. 6d.

"Examples in Elementary Trigonometry." Collected and arranged by Fred Charles and W. Sutton. 61 pp. (Christophers.) 1s.

"Macmillan's Reform Arithmetic." Girls' Edition. Book VI. By P. Wilkinson and F. W. Cook. 48 pp. (Macmillan.) Sewed 3d., cloth 4d.

"An Elementary Treatise on Co-ordinate Geometry of Three Dimensions." Second Edition. By Robert J. T. Bell. 400 pp. (Macmillan.) 10s. net.

"A New Algebra." Part I. By S. Barnard and J. M. Child. 192 pp. (Macmillan.) 1s. 6d.

"A New Algebra." Parts II. and III. By S. Barnard and J. M. Child. 204 pp. (Macmillan.) 1s. 6d.

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**CORRESPONDENCE.**

*The Editors do not hold themselves responsible for the opinions expressed in letters which appear in these columns. As a rule, a letter criticising any article or review printed in THE SCHOOL WORLD will be submitted to the contributor before publication, so that the criticism and reply may appear together.*

**Parallels and Transversals.**

I READ with great interest the excellent article on "A New Treatment of Parallels and Transversals," by Mr. Bayliss, as it is in effect what I have used for some time now. The necessity of the "first new proposition" of the article impressed itself upon my mind owing to the difficulty I originally found in teaching theorem IV. of Godfrey and Siddon's "School Geometry," and on the principle of dealing with one difficulty at a time I then introduced a preliminary proposition proving the results of the "first new proposition" of the article. I may also mention here that for the purposes of blackboard demonstration I have found a sheet of tracing paper most useful for illustrating the rotation of the figure on one side of the transversal.

I do not remember, however, having any difficulty in using the phrase, "two interior angles on the same side of the transversal," and the brevity gained by the word "opposed" might be compensated for by a possible confusion in the child mind with the word "opposite," more especially as I have entirely discarded the use of the term "vertically opposite." Moreover, in the experimental and intuitional stage I regularly use a jointed model *with long arms*, and deduce the property of the "opposed" angles by considering parallels as the limiting case of a triangle, the angle-sum-property of the triangle having been previously considered. Thus the fact is comprehended thoroughly before the scientific proof is attempted.

The proposal to consider the figure upon one side only of the transversal is excellent, and I shall not fail to test it upon the first opportunity.

Also, as in the article, I have constantly used as a substitute for "two straight lines cannot enclose a space," the equivalent axiom, "two straight lines cannot intersect at more than one point," as being clearer and simpler.

The "walking round" or Hamiltonian method I have relegated to the experimental stage in the lowest form as a means of accumulating fresh evidence in favour of a truth already obtained experimentally. At this stage, and even later, I have found jointed models most useful in helping to establish the universality and continuity of ideas about triangles and parallels. Personally, I consider that during the experimental stage too little stress is laid upon the fact that the results obtained are not accurately or universally established, but that there is something higher at which to aim. The words, "as accurately as we can," should be constantly added to the generalisations obtained and constantly in the minds of the pupils, so

that when the logical stage is reached the apathy that is often found is replaced by an enthusiastic appreciation of its necessity. The function of the experimental stage is to provide a taste for and an appreciation of the logical stage. I view with disfavour any treatment of theorems in the final stage which will not stand the test of logical analysis. In fact, I have occasionally found it a useful and instructive exercise in logical reasoning to elicit the faults of some of the previous intuitional evidences used.

I believe a series of articles in THE SCHOOL WORLD on "First Ideas of Geometry" would be of great value in systematising experimental geometry and getting it in the right perspective, especially as I—and I do not suppose I was any exception—was nurtured on a non-practical treatment of the elements of geometry. I distinctly remember my first impression of geometry was that of learning by rote more than forty definitions, postulates, and axioms, and plunging into the intricacies of the early propositions of Euclid, Book I., with the usual explanation of compasses that collapsed except when used for drawing a circle, and I also remember that my outward meek acquiescence was balanced by inward rebellion against such "rot." It is only since I commenced to teach geometry that I have realised the advantages of a preliminary experimental course both as a preparation for logical work and as an aid to accuracy in detail of execution, thought, and expression. It has also afforded many "psychological shocks of pleasure," both to teacher and taught.

S. LISTER.

Uxbridge County School.

MAY I be permitted to thank Mr. Lister for his kind and appreciative criticism of my article, and for the very interesting and valuable suggestions he puts forward? I am delighted to find that he is in full agreement with "the first new proposition."

With regard to the term "opposed," I have already received a similar criticism, and the suggestion to substitute "conjoined" as being more in harmony with the German use. I am still convinced that some word (such as "conjoint") is required to fix the idea, and to banish the barbarism, "the 2 int.  $\angle$ s on same side of transl."

We should then have four pairs each of corresponding, alternate, and conjoint angles: always one internal and one external in the first case, and always both internal or both external in the other cases.

Mr. Lister may be interested to know that for years past my pupils have learnt to regard the statement, "Two straight lines cannot intersect at more than one point," as the *definition* of a straight line. This is illustrated by showing how to make a "straight-edge" on a desert island. Even the youngest boys seem interested in this application, and in learning how a "perfect plane" is made by superposing three surfaces; so that, to use an Hibernianism, we cannot make *one* plane until we have made *three*, nor *one* straight ruler until we have made *two*!

With the whole tenor of Mr. Lister's illuminating remarks I am in cordial agreement, and shall be specially interested to learn the result of his test.

R. WYKE BAYLISS.

### Science in Girls' Schools.

THE opinions expressed in the symposium on this subject in THE SCHOOL WORLD for December are varied and interesting, and really raise the question: Why do we teach science in schools at all?

Subjects which are useless in actual after-life may still be worth teaching at school, and the usefulness of a subject is not by any means a decisive reason for the inclusion of that subject in a school course.

The real reason for teaching science at school is most evident when the aim of a man of science is compared with that of a lawyer, a politician, or a diplomatist. The business of a man of science is to attain to the real truth at all costs; a lawyer often desires to conceal the truth on behalf of his client, a politician on behalf of his party, a diplomatist on behalf of his country.

That it is always wrong—morally wrong—to believe anything on insufficient evidence is a rule or law which should receive universal assent and a good deal more attention than it does. Men and women accept all sorts of belief nowadays on all sorts of grounds, and it is only rarely that any trouble is taken to collect and examine the evidence for or against such beliefs. Many ardent advocates of Free Trade or Tariff Reform at the present day have no better grounds for their belief than those they have obtained from the highly coloured speeches of party politicians. The same remarks apply to many other of the most cherished convictions of the men and women of to-day, and this lack of any desire or ability to collect and weigh evidence is responsible for most of our mistakes and follies.

The great aim of the educator should be to train boys and girls to be more careful about their beliefs, to accept as little as possible on authority, and to examine the evidence before arriving at a conclusion. If possible first-hand evidence should be acquired, and second-hand evidence should be closely scrutinised to see if it is really trustworthy. The importance of our beliefs lies in the fact that beliefs govern actions in the workshop, the mart, the office, at the ballot-box, and in every walk of life.

No subject in the school curriculum is so useful for training of this sort as science, and it is the special privilege of a science teacher to instil into the minds of boys and girls a real love for truth and a desire that no false metal shall be accepted as refined gold.

On this account it does not seem desirable to differentiate very much in the subject-matter of science as it is presented to boys and girls, and it is extremely important that this should not be done in such a way as to endanger the main object; and it is just at this very point that most of the courses and books on domestic science seem to fail.

Great care should be taken that a school course is so chosen that there is sufficient evidence for the facts before they are accepted. All jumping to conclusions should be strongly discouraged, and it is indeed worth while to go out of the way to show how more evidence overthrows conclusions which have been drawn too hurriedly.

Miss Freund shows in her contribution how this fallacy of insufficient evidence runs through some domestic science courses, and Mr. R. Henry Jones advocates the acceptance of a truth on evidence which is not sufficient. The liquid obtained from the distillation of milk is water in all probability, but a probability is not enough when it is possible to make certain. It is not a mere academic point of view, and it ought not to be common sense to believe something without sufficient proof.

Domestic science courses generally begin in much the same way as the course more usually followed in secondary schools, and then launch off into the highways and byways of organic and physiological chemistry without establishing any connection with the work which has already been done. The books often seem magnified dictionaries or condensed encyclopedias. The true aim of science teaching is completely missed in this way, and the gain to the girls is not very evident, while their loss is very considerable. Is the aim of domestic science teaching to make

better cooks and more intelligent household managers? A woman is not likely to make a better cake because she knows baking powder gives off carbon dioxide when heated, or to select and cook a joint of meat in a more efficient way because she has been told that the proteid present in meat is myosin. If a better cook is the desired end, a lesson in the school kitchen is worth a term in the laboratory; but the lessons in the school laboratory should aim at something higher—a better, more efficient, truth-loving woman rather than a mere cook, however intelligent she may be.

The importance of science is not at all properly recognised in our schools at the present day, and a recourse to domestic science is not likely to put science in its true place. That science should be supreme in our schools is Herbert Spencer's conclusion; this may be too much to say, but there can be little doubt that far too much time is spent on teaching subjects where belief depends on authority, and far too little on those subjects where the more important method of acquiring belief on trustworthy evidence might be inculcated.

It is impossible to say how much benefit might accrue to any nation by the devotion of a reasonable amount of time in the schools to science. The science in many secondary schools is limited to physics and chemistry, but so much time should be devoted to science that the last two years of a school course could be given to a study of biology, which would enable boys and girls to understand something about their own body and its functions. W. A. WHITTON.

#### Teaching to Read.

THE paiperz red at the meeting ov the British Asoesiashon on reeding and ricting ar interesting az the rezult ov eforts directed tu solving a needlesli complicated problem. Much mai be sed for the "looc-and-sai" method if we yuz such a reched speling az ours—but whi yuz it? Mr. Jarvis, in yur Desember isyu, maintainz that Japanese children reed with at leest the saim degree ov fasiliti az English children ov coresponding yeerz. I am not aibl tu chec the acyurasi ov this staitment; but asyuming that it iz corect, it simpli shoez that the tu naishonz ar ceewali handicapt bi absurd methodz ov representing the spoccen langwij. It haz been mi privilej tu noe several distingwisht Japanese edyucatorz; thai aul regard the nesesity ov memoriezing sum thousanz ov ideografs az a veri grait draubac, a seerius waist ov tiem, espeshali az thair langwij can be cwiet wel spelt bi meenz ov the simpl Kana alfabet.

It is a puer consolaishon tu noe that the Japanese chield iz no beter of than ourz. It iz mor profitabl, I thinc, tu realizez that the German chield spendz mor than a thousand ourz les in lurning tu spel corectli than our children duu, simpli becauz the German speling iz a fairli good representaishon ov the soundz.

Wun can not withhoeld admiraishon from thoez hu devoet thair enerjiz tu maicing the best ov a veri bad job; but whi not devoet theez enerjiz tu impruuing the speling itself? The natyural cors iz tu maic shuer that the children lurn tu speec wel, and, oenli when that haz been acheevd, tu provied them with a sien (or digraf) for eech sound. Thai can then lurn tu spel bi coping out wurdz and at the saim tiem sienentli articyulaiting them, which Meumann and Lay hav shoen tu be the best method for lurning tu spel a langwij that haz a sensibl riten form. Our curent speling, on the uthar hand, tho the sienz ar alfabetic, not silabic or ideografic, duz not obai the baisic prinsipl ov alfabetic speling, "wun sound, wun sien"; and the oenli wai tu sceyuer acyurasi iz bi mecanical, unreezoning dril, az Dr. Wallin haz demonsttraited in hiz valyuaubl monograf on "Speling Efishensi."

I am confident that az increesing atenshon is given tu the soundz ov our langwij, the discontent with our ridicyulus speling wil groe until it iz a rietcus indignaishon. The demaand for a rashonal speling wil becum insistent, and when we hav ataind it (and I hav never been mor hoepful than aafter the eespeerens ov the paast yeer), thair wil be no need for eni such fundamentali irashonal maichshifts az the "looc-and-sai" method. The fonetic method iz sound; but we can not maic proper yus ov it until the speling iz reezonabli fonetic. This iz whot everi teecher shoed wure for—everiwun hu urnestli dezierz tu enhans the efishensi ov our naishon, tu keep the langwij from spliting into a number ov dialects, and tu help it tu spred rapidli thruout the Empier, thruout the wurdli.

WALTER RIPPMAUN.

Simplified Speling Sosieti, 44 Great Russell Street,  
London, W.C.

I DID not, of course, intend my letter to be read as an attack on spelling reform—a movement with which I have a considerable measure of sympathy. I must, however, endeavour to remove a slight misapprehension in regard to Japanese. In that language the ideographs are indispensable; they are the backbone without which the literary language, which is infinitely richer than the colloquial, would collapse. To give an illustration, there are at least forty ideographs, with as many distinct meanings, having the sound *chō*. The Roman spelling makes no distinction between them, while the "simple" Kana syllabary—not alphabet—represents the sound in four ways, viz. *chi-ya-u*, *chi-yo-u*, *te-u*, and *te-fu*, which can scarcely be called phonetic. Can it be wondered at that the Japanese prefer the distinctive ideographs, and that both the Romanisation and the Kana movements have almost fizzled out? The organ of the former, by the way—a monthly printed in Romanised colloquial—announces itself, with unconscious humour, as "the only Japanese journal printed in Roman characters." I cannot trespass further on the Editors' goodwill by discussing here the reason why the Japanese do not write as they speak, but to avoid a fruitless controversy I may say that this, and confirmation of all my statements, can be found in the works of Prof. Chamberlain and other authorities on Japanese. *Experto crede.* W. J. JARVIS.

#### Refractive Index of a Liquid.

A MODIFICATION of an old experiment may be of interest to some of your readers. The apparatus required consists of a cubical block of glass to one face of which is fixed, by a suitable cement, a short length of glass tube. The tube is filled with the liquid the refractive index of which is desired and a cork inserted. The liquid used will, of course, determine the nature of the cement, but information with regard to cements may be obtained from a book on laboratory arts, such as that by Mr. G. H. Woollatt (Longmans).

Fig. 1 explains itself. The block is placed on a sheet of paper on a drawing-board, and the line AB is drawn. A light is placed at some distance from the block on the line BC produced. On looking through the face AB, at a suitable angle, one notices—in the apparently elliptical space where the tube joins the glass block—a red vertical line bordered by the other colours of the spectrum. If the eye be placed in such a position that the red line is only just visible, the light will be entering the glass block from the liquid at the critical angle for the yellow rays. Of course, a sodium flame would be used if a dark-room is available, and the critical angle could then be obtained rather more accurately. The eye still being in position, place two pins one behind the other



so that they are in a line with the vertical tangent to the ellipse.

Fig. 2 shows the course of a single ray of light. Let  $\phi$  be the angle which the line joining the two pins P and Q makes with the normal to AB,  $\theta$  the critical angle,  $\mu_v$  the refractive index of glass,  $\mu_w$  the refractive index of liquid, then—

$$\sin \theta = \frac{\mu_w}{\mu_v}, \quad \frac{\sin \phi}{\cos \theta} = \mu_v$$

$$\therefore \mu_w^2 = \mu_v^2 - \sin^2 \phi.$$

Thus, if the refractive index of the glass is known, the refractive index of the liquid can be determined. A boy should be made to calculate his own value of  $\mu_w$  by tracing the path of rays through the glass block.

It is obvious from the above formula that the method will be useless for a liquid the refractive index of which is equal to or greater than that of the glass. A boy should, after first finding the refractive index for water (in which case it is easily possible to get a good result), be given in turn turpentine and carbon

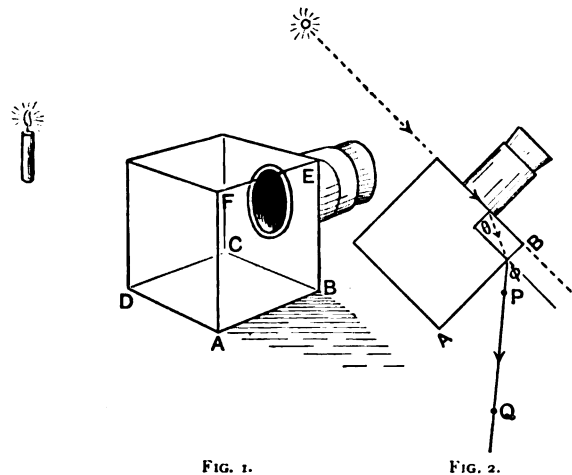


FIG. 1.

FIG. 2.

bisulphide. When he finds the first of these liquids unsatisfactory on account of the smallness of the angle  $\phi$ , and the second impossible, he may himself suggest some modification of the apparatus.

A glass cell with a glass partition dividing it into two halves may possibly occur to him. If water is put into one half, and the turpentine or carbon bisulphide into the other, the same method may be employed. The above experiment has been found eminently suitable for school use, as the cost of the glass block is only about 1s., and the double cell made of pieces of thin plate-glass is quite inexpensive.

W. H. SCARBOROUGH.

Leighton Park School, Reading.

**Geometrical Figures.**

I HAVE to thank you for forwarding to me letters you have received with reference to my note on geometrical figures in the December issue of THE SCHOOL WORLD. You will remember that I told you that the original title I gave the note was "The Advisability of Drawing Geometrical Figures with Instruments," but as this heading would at once have shown the fallacy it would have deprived those of your readers who had not seen it before of the pleasure of finding the fallacy for themselves.

An anonymous correspondent states that my figure was *badly* drawn. I thought it was rather *well* drawn, because upon casual examination it was not

evident how it had been faked. When the figure is *accurately* drawn it is seen that HIF falls outside the square, and the triangles ADF, HCF are congruent.

Messrs. Elliott, Noble, Pearson, and Rev. O'Toole prove that HF must lie entirely outside the square, thus: the right bisectors of AB, AH, and BH are concurrent at F, also the right bisector of BH must pass through C,  $\therefore$  FH must be on the side of C remote from A.

Mr. Haslam discovers only one place where the original figure was inaccurately drawn, and on this bases an erroneous statement. Mr. Bell advises me "not to claim originality for it, as the defect in proof is apparent at a glance. The proof that HF is longer than AF is of the most elementary description, and so obvious that it would be unfair to take up your space with it." Mr. Bell overlooks the fact that this only gives another way of stating the fallacy: F, which is on the right bisector of AH, is not equidistant from A and H.

Mrs. W. N. Shaw wonders why the letter was published, and unconsciously supplies one of the reasons by assuming that I imagined I had made a discovery which contradicted a proposition of Euclid. "In the good old days a student who found that any discovery of his own contradicted a proposition of Euclid would have known that his discovery was due to some error. But now Euclid is discredited, his proofs are stated not to be rigid, his methods are clumsy, and he is banished from the schools. Contempt for his propositions follows as a somewhat natural consequence in the immature student." The glee with which several correspondents assumed that the author and the mathematicians to whom he showed the figure were unable to see the fallacy is very obvious. One correspondent, signing himself "Sigma," goes so far as to state gravely: "Assuredly no mathematician could fail to discover the fallacy."

Messrs. Eattell, Gerrans, Scott, Felix Potter, Mayo, Lister, Scarborough, White, and Parnell-Smith point out that the fallacy is given in "Mathematical Recreations," by W. W. Rouse Ball, "Matematica dilettevole e curiosa," by I. Ghersi (Hoepli, Milano, 1913), "A Study of Mathematical Education," by J. Benchara Blandford, and "Scientific Method," by F. W. Westaway; the last author acknowledges his indebtedness to Mr. Rouse Ball for it. I may add that before the letter actually appeared the Editors directed my attention to the fact that the figure is identical with one given by Mr. Rouse Ball.

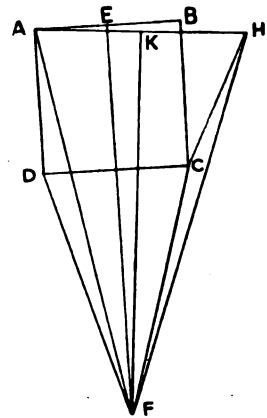
Letters were also received from Messrs. Oglesby, Watson, Savage, Stockall, Greenan, "Puzzled," and "Reader."

J. HART-SMITH.

Battersea Polytechnic Secondary School.

**Examples of the Principle of Parallax in Optics.**

In addition to the well-known experiments on positions of images in plain mirrors, the centres of curvature of concave mirrors, or the conjugate foci of convex lenses, found in almost every course of practical physics, there are a number of less well-known though extremely interesting experiments which can be carried out with the same simple apparatus. Of



the three experiments described, the first, "To find the radius of curvature of a convex mirror," has both the simplicity of the practical manipulation and of the underlying theory to recommend it, while the second and third, dealing with the measurement of indices of refraction, have the great advantage of affording easy practical applications of a somewhat difficult though important section of theory. All three experiments can, with a little practice, be carried out to a quite considerable degree of accuracy. A letter from the author describing the third experiment was published in NATURE, October 26, 1911, but may have escaped the notice of some readers of THE SCHOOL WORLD.

I. To Find the Radius of Curvature of a Convex Mirror.—A small lens is chosen of which the converging power is greater than the diverging power of the mirror. The focal length of the lens is first found by the usual method of parallax with a plain mirror, using the apparatus shown in Fig. 3. The lens A, in Fig. 1, is then placed on the mirror B, and the needle point P adjusted until a real image is obtained coincident with P, that is, in such a position

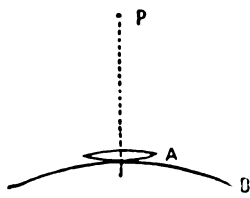


FIG. 1.

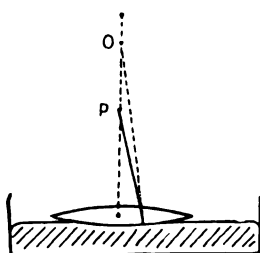


FIG. 2.

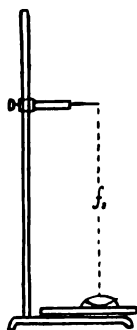


FIG. 3.

that any ray from P passing through the lens and striking the mirror returns along its own path. But obviously the condition for this is that all rays, after passing through the lens, are converging towards the centre of the mirror. Hence, by substitution of the observed values of  $u$  and  $f$  in the usual formula,

$$\frac{1}{u} + \frac{1}{v} = \frac{1}{f},$$

we at once obtain  $v$ , which is numerically equal to the radius of curvature of the mirror.

II. To Find the Index of Refraction and Radii of Curvature of a Lens.—A convex lens is best chosen having its two faces of equal curvature, say with each radius numerically equal to  $r$ . The focal length is first determined as in experiment I., with the plain mirror and needle. Let it be represented by  $f$ . Then we know that these two quantities are connected with  $\mu$  by the relation—

$$\frac{1}{f} = \frac{2(\mu - 1)}{r} \dots \dots \dots (i)$$

The lens is then caused to float upon clean mercury, as in Fig. 2, and the needle point P is adjusted this time until coincident with the real image of itself formed by reflection in the mercury surface

and two refractions in the upper surface of the lens. Let the distance of the lens from the needle be  $u$ . This is, of course, directly measured, but it is evident that the virtual image of the needle point formed by single refraction in the upper surface is at the centre of curvature O of the under surface. Hence instead of the usual relation—

$$\frac{\mu}{v} - \frac{1}{u} = \frac{\mu - 1}{r}$$

for refraction in the upper surface, we can write

$$\frac{\mu}{r} - \frac{1}{u} = \frac{\mu - 1}{-r} \dots \dots \dots (ii)$$

or

$$\frac{2\mu - 1}{r} = \frac{1}{u},$$

and on substituting for  $r$  from (i) this becomes

$$\frac{2\mu - 1}{2(\mu - 1)} = \frac{f}{u},$$

which at once gives  $\mu$  from the known values of  $f$  and  $u$ .

Finally, it is only a matter of a simple substitution for  $\mu$  in either (i) or (ii) to find  $r$ , the radius of curvature of either surface of the lens.

III. To Find the Index of Refraction of a Liquid Available only in Small Quantity.—Using the same apparatus (Fig. 3) the focal length of a small lens—conveniently that used in experiment II.—is first found—let it be  $f$ . A drop of the liquid is then placed on the mirror and covered by the lens, which spreads it out to the form of a plano-convex lens. The position of the coincident image and object is then again found—let the new distance be  $f_2$ . We then know that the focal length, say  $f$ , of the liquid lens will be given by the relation

$$\frac{1}{f} = \frac{1}{f_2} - \frac{1}{f_1}$$

But, since the radius of curvature of the under surface of the liquid lens is infinite, it follows that the focal length of this lens is also given by the relation—

$$\frac{1}{f} = \frac{\mu - 1}{r},$$

where  $r$  is the radius of the under surface of the glass lens. Hence with a knowledge of  $r$ , say, as found in experiment II., and the two simple measurements  $f_1$  and  $f_2$ , we have all the data required for the determination of  $\mu$ .

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## The School World.

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# The School World

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SIXPENCE.

## ATTENTION—THE CHILD'S POINT OF VIEW.<sup>1</sup>

By PROF. J. W. ADAMSON, B.A.

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IN this very brief paper it is proposed to consider one aspect only of the mental attitude called attention, and that aspect solely from what the teacher would regard as the practical point of view. There has been discussion of late respecting the terminology of attention, and a certain measure of agreement seems to have been secured in virtue of which such terms as "voluntary" and "involuntary" are made to bear meanings contrary to those formerly connoted by the same words. Personally, I regard this agreement as unfortunate, since one result of the change of terminology has been confused thought, and the statement of principles which are mischievous when applied to teaching. But whether we describe attention as voluntary or involuntary, spontaneous or forced, apperceptive or non-voluntary, and whatever be the precise significance we attach to these words, the cardinal fact for the teacher is that attention always expresses purpose. The mind which attends does so because it has a purpose to accomplish.

Purposes are, of course, apprehended with different degrees of distinctness, from the comparative obscurity of purpose when we "start" on hearing an unexpected loud noise, to the clearly apprehended object in view when we are sawing wood, climbing a hill, or reading a book. But whatever the degree of conscious apprehension, the motive of attention is always the attainment of a purpose. Further, the more closely the purpose is identified with one's self, the better fitted it is to become a motive for attending, and the less it requires to be reinforced by extraneous considerations. Purposes which are clearly recognised as one's own cherished projects spontaneously compel attention.

<sup>1</sup> A paper read at the London County Council Conference of Teachers, January 3rd

In no case is this more true than where the "self" is a child. The secret of securing a child's attention, therefore, lies in suggesting purposes which appeal to *him*, purposes which he regards as appropriate to himself individually. The fact is so obvious that its statement almost calls for apology; yet the truism furnishes the key to many a warmly advocated reform of education, from the days of Montaigne to those of Signora Montessori.

Not that those educators whom the reformers would reform ignored the part played by purpose; that would be impossible under any system of instruction. The mistake consisted in ignoring the appropriateness, or otherwise, of the purpose suggested. The older practitioners were apt to argue that the purposes they proposed were for the child's ultimate good, and must therefore be embraced on authority. The implied argument often sufficed for the rare child who loves scholastic learning for its own sake, and also for the less rare child who is merely docile, the conventional "good boy" of the class-room, who sometimes proves to be good for little else. But the purpose suggested to most children was often no more than the avoidance of some form of pain, or the puzzled or grudging acceptance of an *ipse dixit*. And amongst these children so inappropriately induced to attend were to be found pupils of character and parts, as well as mere idlers.

In one of his most practical pages, John Locke tells us that "the great skill of a teacher is to get and keep the attention of his scholar; whilst he has that, he is sure to advance as fast as the learner's abilities will carry him; and without that, all his bustle and pother will be to little or no purpose. To attain this, he should make the child comprehend (as much as may be) the usefulness of what he teaches him; and let him see, by what he has learned, that he can do something which he could not do before, something which gives him some power and advantage above others who are ignorant of it." ("Some Thoughts,"

&c., section 167). The appeal to priggishness gives a distasteful savour to the recommendation; but this should not cause us to overlook the sound argument that a child may be trained to attend by the encouragement which he gets from the sense of progress in his studies. It was one of the virtues of a defective school-organisation that, in days when class-rooms were unknown and oral teaching infrequent, the bulk of the work of learning was thrown upon the right shoulders, namely, the learner's. The method was wasteful; but it secured initiative, and the joys of conscious progress for pupils who often fail to get these advantages under more modern methods. The clever performer at "chalk and talk" is peculiarly liable to what Prof. Minto called "the fallacy of happy exercise." He knows that *he* is working with zest, and assumes that his hearers, or onlookers, are also labouring energetically.

There is reason to believe that instruction deteriorates in its results as its mechanical appliances and its formal organisation are perfected. As teachers become more skilful oral expounders, they tend, or some of them tend, to undertake more than their share of the task and to diminish the child's share correspondingly. Similarly, when text-books are plentiful, the teacher is more and more tempted to rely on them for an indication of the motive, sequence, and method generally of his instruction. The consequence is that the child is expected to find the purpose of his learning in the mastery of his text-book. Thus, the boy who wonders why he is now invited to consider the forms of carbon can only answer his own question by recalling that ammonia was finished with in the last lesson at page 66, and carbon begins on page 67.

But to propose the bare mastery of a book as a sufficient motive in itself is, in many cases, to expect too much. True it is that the child, as a rational creature, is inclined to learn, although his nature disposes him to "find out" rather than merely to accept what he is told. But over against the natural inclination to learn is a readiness to succumb before difficulties or under fatigue; and the difficulties are usually formidable enough to overcome "the love of knowledge for its own sake," when the knowledge is chosen, not by the child himself, but by his elders.

The onset of fatigue is delayed by practice; but this is only another way of saying that the pupil must acquire a habit of attending in a particular manner amid certain definite circumstances. And if the habit is to be formed, attention must be freely, consciously accorded from the outset, and this again

requires the presence of a motive for attending. The problem of securing attention, let the teacher look at it from what point he will, is only to be solved by the discovery of motives which are both appropriate and adequate.

These are familiar considerations to all who undertake the instruction of very young children, to all whose everyday task it is to hold and exercise the varying and elusive mental processes of little people. These teachers cannot become the slaves of a book-made routine, at least, since for them and their charges the book scarcely exists. The gap which divides the nursery and Kindergarten from the school is in part due to a certain rigidity in the teaching, to a uniformity of treatment irrespective of individual pupils, and to the establishment of the printed page as the sufficient canon of method.

It is true that the boy or girl of seven or eight years of age is at a higher level of development than the child of six; but the difference is not so great as to justify a revolution in the matter and manner of instruction. In particular, it is unreasonable to expect children in the lower and middle forms to be possessed by an enthusiasm for truth in the abstract, or for knowledge in general. If we are candid, we shall admit that the number of adult persons so endowed, and personally known to us, is very small. Most of us at bottom fully understand the small boy when he asks of any study proposed to him, "What's the use of it?" He does not necessarily expect an answer in terms of pence or toffee; his meaning is rather: How can this be applied, what power will it give me? If, indeed, he is one of the rare souls who find the end of knowledge in knowledge itself, he sets the teacher no problem of attention, and the case need not detain us.

*Non ragioniam di lor, ma guarda e passa.*

For the majority, knowledge is a thing which is sought when a definite question demands an answer; and this consideration points to the secret of securing attention in the schoolroom. Not information to be absorbed at the arbitrary direction of another, but the realisation of a problem having cogency for one's self, is the highest guarantee that attention will be accorded. The closer school-room conditions can be made to approach this ideal, the more effective will the pursuit of knowledge be.

In practice, this means that studies, in their initial stages more especially, will be approached as a number of problems requiring solution, or a series of general propositions which are to be verified by the pupil, or by

teacher and pupil in collaboration. This is the guiding idea behind the study of grammar, when applied either in the vernacular or as part of the "direct method" of teaching foreign languages. The same conception leads the teacher to employ "sources" in the study of history, and to make a thoroughly good orographical map the centre of his teaching of geography. It presides over the concrete inquiries of the physics and chemistry laboratories, and takes pupils out of doors for nature study, and for the fuller understanding of the mathematics of the class-room.

May we then see the solution of the problem of attention, on its negative side, in the entire abandonment of books? If we do, we shall fail to profit from the lessons which we ought to learn from the history of education, which is full of the mistaken course excused as "the swing of the pendulum." Not the discarding of text-books, but the proper employment of them, is the natural function of the educator in an age when good books abound. It is part of a child's education to-day to learn the right and profitable use of the intellectual and æsthetic wealth garnered in print. Obviously, that is a legitimate consequence of the attitude towards learning which this paper is trying to describe.

But we must not lose sight of our problem in a generality such as "the right use of text-books." The teacher's difficulty lies not so much in discovering an appropriate motive for a particular child as in finding different motives for a number of pupils, whose tastes and capacities vary greatly. The difficulty is inseparable from the duty implied in all education, namely, that the educator should know as thoroughly as possible what kind of person his pupil is. Modes of organisation which make such knowledge hard, or impossible, are foredoomed to small success as agents of education, however useful they may be in less important things. When such knowledge is attained in the case of a class of boys, or girls, it becomes evident that not all children are most at home in scholastic learning, or in scholastic modes of acquiring learning. For example, some learn most thoroughly by using their hands as well as their eyes and ears; the workshop or laboratory is for them more educative than the library or lecture-room. The modern teacher needs to be a person of broad intellectual sympathies, if he is to discharge his bare duty to all who come to him. On the other hand, a community which compels all capacities and all tastes to undergo schooling may reasonably expect this breadth of sympathy from its teachers.

Attention argues the presence of purpose; the teacher therefore builds upon the purpose

lodge in his pupil's mind, if possible upon the pupil's cherished schemes. Does this mean that the teacher is a mere waiter upon childish caprice? I would prefer to say that he enlists in his service the desirable childish instincts, the epithet implying that there are instincts which he would carefully refrain from rousing. Instincts are sufficiently general in their distribution to render them a stimulus to different children. For example: the problem-form of introducing a study appeals to widely different natures, in spite of the necessity for varying the type of problem in order to stimulate all.

Does the dependence on instinct and consciously apprehended purpose mean that the child is never to be crossed, never to be required to embrace what may be termed "foreign" purposes? The question leads us outside the sphere of knowledge. If knowledge be not all in all in education, the principle we have reached stands in need of some modification. In the sphere of conduct, and in that somewhat dim region where knowledge and behaviour so thoroughly coalesce as to defy clear differentiation, the educator is at times bound to require things to be done, or propositions accepted, solely upon authority. The fact is implied in the relation of educator to educated.

In a well-known passage, the late William James urges that we should each of us keep alive in himself the spirit of self-sacrifice by voluntarily discharging some small but disagreeable task every day. A wise educator will not forget this admonition in days of self-pleasing and comfort-loving such as our own. But this is to employ the "foreign" purpose, and to expect attention to it, for disciplinary reasons, for the sake of conduct rather than for the acquisition of knowledge. In such cases, the educator remembers that he is depending on a feebler stimulus; and the arduous character of all learning honestly followed absolves him from *making* frequent occasions of appeal to it.

It may be objected that the conclusion is a mere compromise. We are, and we are not, to employ extraneous purposes as motives to attention. Waiving the retort that the presence or absence of the "foreign" purpose depends upon whether we are at the moment disciplining the will or the intelligence, it may be replied that the conclusion is an attempt to evade "the swing of the pendulum," the passage from one extreme to the other. *In medio tutissimus*. The art of teaching, like the great art of Life itself, constantly requires us not to compromise principle, but to resolve paradoxes, to discover the principle which shall transcend and reconcile propositions which seem mutually contradictory.

## SCHOOL NATURAL HISTORY SOCIETIES.<sup>1</sup>

By F. W. HEADLEY, M.A.  
Haileybury College.

(1) **W**ILD nature may be studied even in London. In spring, migrant birds may occasionally be seen in the parks. The spotted flycatcher has, I believe, been known to nest there. The cries of migrant birds, as they fly over at night, may sometimes be heard and recognised. Then there are trees, but not many species, I think. Wild flowers are very scarce, and butterflies I myself have seldom or never seen. In fact, though a naturalist may find some small consolations in a big town, the field for his activities is very limited if we except the opportunities that museums and zoological gardens put at his disposal. If, therefore, a school natural history society is to thrive, the school should be in the country, in unspoilt country. In what may be called suburban country, the wandering naturalist too frequently finds himself in the near neighbourhood of houses and gardens, and is unable to trespass with a good conscience. For schools in big towns it is a great advantage, I think, to have one whole holiday in place of two half-holidays. It allows of big expeditions.

(2) The second condition is that there should be a fair number of boys who are potentially naturalists. This condition is not likely to be wanting. But we must divide our boy naturalists into two classes: (a) those who are drawn to the subject by a strong impulse, and (b) those in whom the taste requires to be developed.

In the latter it has very often pined and dwindled owing to adverse circumstances. It is not that they have lived in towns all their lives, for they have spent three-quarters of each year at school, and, as a rule, the school was in the country. But in most cases being in the country does not, while they are at private schools at any rate, mean that they have much opportunity of seeing what the country has to show. When school-time is over, they are often confined to the playground. Surely it is possible to mitigate this system. If those who are responsible for it were in earnest about natural history, or if they held truer views about education in general, they would soon see their way to mitigate it. We cannot expect boys thus cribbed, cabined, and confined to develop their intelligence to the full.

The sons of the poor in our village schools are in this respect many of them better off. In many of these schools the study of natural

history is now encouraged as an important part of the life of the school, and if those whose business it is to teach boys in schools of a higher grade would read what is said by village schoolmasters about the intellectual advance that results from the habit of outdoor observation, they would allow natural history to play a more important part.

Books and oral instruction have their place, but they should not be allowed to oust first-hand observation. A boy who learns a fact by his own observation is a discoverer, even though what he has made out has long been known to others, and has long been recorded in books. And to make discoveries helps the development of the mind. If this comes to be generally recognised, not so many boys will have their enthusiasm for natural history starved out of them. In this respect the public schools have much to answer for, though private schools are, I believe, far worse offenders.

(3) Whether there is need in a particular case to develop the taste for natural history, or whether only guidance is required, our method in dealing with a boy must be much the same. In boyhood the hunting instinct is strong, and collecting is a form of hunting to be tolerated or encouraged in the hope that it may lead on to a better form of study. But there is always a danger that the collector may be a mere plunderer and exterminator, and it must be kept constantly before him that observation, the collecting of facts, not the collecting of tangible butterflies or flowers, is the important thing.

Expeditions, field days, are excellent things; but if a boy is to make much of outdoor natural history he ought not to become dependent on them, but go out by himself or with other naturalists of his own age, and so learn to be self-dependent. Some things, no doubt, boys are not likely to make much of without help, *e.g.*, the songs of birds. And, let alone their beauty, a knowledge of them is most important to the ornithologist, since there are a good many birds that it is difficult to get a look at, but easy to hear. As practical measures to encourage the independent pursuit of natural history, I recommend that genuine naturalists be treated liberally in the matter of call-over, and that they be allowed to widen their range by means of bicycles.

Many boys are, in a way, specialists. It is not that they go deep into any particular subject. Their thoroughness often shows itself only in the complete neglect of every branch of natural history except the one which they have chosen. A dabbler in entomology is often unwilling to look at a bird. Specialisation, in fact, often means narrowness, not

<sup>1</sup> A paper read at the annual meeting of the Association of Science-masters in Public Schools, on January 8th.

depth. A school museum ought to help to correct this. It should be open, if possible, when all the boys are free from engagements, and, excepting Sundays, there is probably no such time. At some other time it should be open to those who wish to make a serious study of zoology. Once a week I have a small museum class, and in the course of five or six terms we plough through nearly the whole animal kingdom together. The boys make notes and drawings. At the end of the term a small prize is awarded, adjudged mainly by the help of a short examination paper.

To return to the subject of narrowness. The collections in the museum should, if possible, cover a very wide field. In the Haileybury museum all the main classes of the animal kingdom, except the protozoa, are fairly well represented. The idea that the collections should illustrate only the local fauna and flora seems to me entirely wrong. Many boys find themselves at the seaside in the holidays, and the museum should make it clear to them that there may be great opportunities there. The marine fauna is far more varied than that of pond and stream, or than that of the land, and to neglect it altogether is a foolish thing. The fauna and flora of foreign countries may be represented by a few typical specimens. There should, for instance, be an ornithorhynchus, a sloth, a hyrax, an apteryx, a bird of paradise. In fact, zoology throughout its range should be kept in view, and not only the local fauna. Occasional lectures to stimulate a general interest are of value, especially when an old boy gives an account of some work that he has done or of his travels and explorations.

(4) It must not be supposed that because the love of natural history is a passion with some boys prizes may therefore be dispensed with. Prizes lead to method and definiteness. It requires much perseverance to make a large botanical collection or to record observations systematically. The Society for the Protection of Birds has done a great service by offering to boys at public schools prizes for essays on birds, the essays to embody their own observations on the birds of a district, or on the migration of birds. In some schools good results seem to follow from the recording and publication of almost everything in the way of natural history that a boy notices. No observation is left without its meed of honour. I have shrunk from adopting this plan, though I recognise the success it has had elsewhere, and have published records only of the more important things. Indeed, my practice has been to make our society's annual report very brief.

The annual reports of the natural history

societies of many schools include, at intervals, lists, for example, of the butterflies or the beetles or the flowering plants of the neighbourhood. I have found it better to bring out a fauna and flora of the country round Haileybury, interleaved and bound in a soft cover, so that it is conveniently carried in a coat pocket. Its most recent edition includes mammals, birds, reptiles, batrachians, lepidoptera, crustaceans, molluscs, rotifers, and flowering plants. Other things are to be added if time and energy allow.

Birds, I find, interest more boys than any other department of natural history. There are, of course, lepidopterists; there is an occasional coleopterist. Beyond beetles and lepidoptera there are no insects that I can get boys to work at. Spiders are equally neglected. Molluscs have an occasional devotee. We have ponds that teem with microscopic life, a fine field for a boy who has a microscope.

Botany too often ends in mere collecting. But the study of plant communities ought to be of interest now that its importance has been made known. Plants, however, have always for boys this drawback, that they do not fly for their lives, and so do not excite the hunter instinct to the same extent as, *e.g.*, butterflies do. For naturalist photographers, birds' nests are, of course, a favourite subject. But trees are also excellent subjects, and they are there winter and summer. Why are they so much neglected? Why is so little done in the winter months? Our keenest ornithologists note our winter bird visitors. But most boy naturalists, most unreasonably, consider the winter a blank time.

(5) If possible, natural history should be popularised. At many schools, I hear, it is looked down upon as a merely juvenile subject, or as affording consolation to the unathletic. If possible, it should be made clear to some of the leaders of the school, those who make public opinion, that it is not a thing for little boys only, but that the study of it leads on to the study of evolution and problems that are difficult enough for anyone. With this view, I invite those members of the society who have attained the rank of prefects to esoteric meetings, at which I discuss with them questions connected with natural history, sometimes questions that would be rather difficult for the rank and file.

(6) It need scarcely be said that anyone who undertakes the management of a natural history society should himself be a naturalist. If he undertakes it as he undertakes call-over when his turn comes, not very much good is likely to come of it. Boys, of course, expect him to be omniscient, a modern Solomon that can

discourse on any animal, from diplodocus down to the least of the microlepidoptera. But Solomon, if he had lived in the twentieth century, even if he happened to be a schoolmaster, would have discarded omniscience as a snare. Certainly it is best, while taking a general view over other departments, to have one's own special hobby and make headway in that. A man gains by having a pursuit of his own that he follows because he likes it quite apart from his duty to his boys. To a man who has got most of what he knows from books, as so many schoolmasters have, it is a liberal education to go to nature and learn something from her direct, at first hand.

### SCHOOL SCIENTIFIC SOCIETIES.<sup>1</sup>

By W. M. HOOTON, M.A., M.Sc., F.I.C.

Repton School.

**T**HERE are few science teachers who would claim that their school courses of work are entirely scientific. Even when the teacher has a free hand in drawing up these courses, he has to legislate for the majority. A boy's individual taste and capacity are of less importance than the fact that he has to be taken with nine or possibly twenty-nine others.

Moreover, the school course is often designed for a particular examination, and this entails revision, repetition, and much written work. So it is bound to happen that some boys, even among those with scientific aptitude, find parts of the routine work dull and irksome.

It should be the function of a school scientific society to counteract this effect, partly by its complete freedom from formal instruction and partly by its direct appeal to a boy's taste. The main object of such a society is to encourage scientific curiosity and supply an outlet for energy in this direction. It does this by providing working material and opportunities for developing taste. There should be no attempt to control the boy's efforts or even to direct them.

Most boys like to know how things "work"; locomotives and dynamos fascinate them early in life, and they eagerly spend time and pocket money in the construction of working models. But this activity is seldom scientific. It arises from their imitative faculty, and gratifies their sense of power; they enjoy getting a thing to "go." What curiosity there may be is for the known rather than the unknown.

The proportion of boys who possess the spirit of scientific curiosity is much smaller,

<sup>1</sup> A paper read at the annual meeting of Science-masters in Public Schools, on January 6th.

probably less than 5 per cent. Very few boys seem to wonder why grass is green or why a bicycle pump gets hot when it is used. But it is just these few boys who will form the nucleus of a science society, and who will get most benefit from it. In the course of the work of the society, opportunities arise for discussing with them their interests and hobbies such as do not come in the more formal business of class teaching.

The particular form which the society takes will depend partly on the tastes of the boys and partly on the facilities which the school and the district afford. In earlier times, these societies were almost invariably for the study of natural history, and much excellent work was done. A large proportion of the fossils found in the N. Leicestershire coalfield, and listed in the geological survey of that district, were collected by Repton boys under the direction of Mr. H. Vassall.

Of course, to many boys the collection of natural history specimens is no more scientific than the collection of postage stamps. But in some instances the results have been far-reaching; for example, a school hobby for collecting wild flowers has led to a professorship in botany and an early fellowship of the Royal Society.

In many schools, natural history gatherings are still the chief scientific activity out of school hours. But at Repton this has become impossible, since games are compulsory on almost every half-holiday. Consequently, the science society meets in the evening, as a rule, and the members in turn "get up" some particular subject which interests them and give a lecture on it, the lecture being always illustrated by slides, and whenever possible by experiments. The subject may be purely scientific or it may be some practical application of science; a technical process is frequently chosen when the boy who lectures has relatives or friends who are engaged in some industrial concern and can supply him with information. For example, we have had very interesting lectures on such matters as electric steel furnaces and bread-making.

At suitable intervals, the lecture course includes such subjects as wireless telegraphy, liquid air, and radium, subjects which cannot easily be treated in any detail in the ordinary school course.

The effort of preparing lectures is a very useful exercise for the boys, since it compels them to search journals and reference books, and to acquire some notion of selection and arrangement. The lecturer sometimes makes his own slides, and in many instances he has to practise his experiments very thoroughly.

A certain amount of outdoor work is carried



on, and meteorological readings are taken daily. But it is found that the mere recording of observations soon becomes tedious; to maintain interest their utility must be indicated, *e.g.*, by connecting barometer readings with weather forecasts and comparing rainfall with river drainage. Measurements are made periodically to determine the amount of solid matter carried down by the Trent; this estimation is an unusually good practical exercise for boys, and, if made under supervision, the results of such work are likely to be of value to the Royal Geographical Society.

Whenever possible, excursions are made to local coal mines, engineering works, potteries, and glass works. These visits are of particular interest to boys who live in the country.

As to the ultimate value and influence of these societies, it is impossible to make an estimate. But in the meantime they tend to make school life happier and richer, and they provide an outlet for energy in an entirely healthy direction.

### SCHOOL REFORM IN GERMANY.

By T. R. DAWES, M.A.

Headmaster of the Secondary School, Castleford.

**D**ISSATISFACTION with the education in the school is perhaps almost as widespread in Germany as in England, where one reads almost every day in the newspapers complaints of the unsatisfactory results obtained from the money spent on the schools. The German critics may not say the same things as English, but in both countries it is urged frequently that the foreigner has shown greater wisdom, and it is encouraging to hear the German say, and not infrequently, that the practical Englishman has many a lesson to teach.

It is not asserted that the German schoolboy does not know enough; rather the other way, that he knows too much; but the German school is accused of burdening him with too much book-learning, while failing to develop self-reliance. He has no initiative; he has been the passive receiver of masses of information drilled into him most thoroughly and zealously by his teachers. He has too little time for games; he is always haunted by the fear of not getting his yearly promotion and the all-important leaving certificate he gets at the age of about sixteen, which not only excuses one year of military service, but is the passport demanded before he can enter in a career in the civil service or in business. For the professions he needs, of course, to study at a university, and must get the higher certificate after remaining at school till eighteen or nineteen.

The dissatisfaction with the schools led some four years ago to the formation of a League for School Reform, to which belong not only inspectors, headmasters, headmistresses, teachers in all types of schools, and doctors, but many others interested, but not officially concerned, in educational work. Perhaps the most popular word with the reformers in Germany to-day is the word *Arbeitschule*—the *work school*, in contrast to the *Lernschule*. The league has published an account of its discussion on the *Arbeitschule*, in which it sought to establish what was meant exactly by the reformers. Their aims were expressed differently by various speakers. Some held with Kirschensteiner, of Munich, that what is wanted is more handwork. As the girls have their needlework and cookery, so there must be plenty of handicraft for the boys. Here the boy must work for himself. He is a producer or creator, and the work in this subject will react upon other subjects. Others held with Gaudig, of Leipzig, that the principle of the *Arbeitschule* is a revolutionary one, which must be applied to every subject in the curriculum. The wood workshop is good, it replaces observation and passive attention by active production; but the great principle is the independent activity of the pupil in all subjects. The pupil must take an active part himself in the selection and in the ordering of his work. It is he who must control it and assist energetically in correcting it. The school must be rather a workshop than a lecture room, a workshop where the pupil acquires knowledge by his own independent work, not a place where knowledge is drilled into him, or where he is worked up to a standard by another—a workshop where he, under the guidance of a master, gains the skill to work himself, in order by his own efforts to add to his knowledge. Keen delight must ennoble the task; dull, stupid toil is useless; what is wanted is bright and joyous activity. When he arrives at the examination, he will not be questioned as to knowledge acquired, but he will be given free scope to show what he can do.

The visits which I had the privilege of paying to schools of various types in Hamburg in September last, in company with Dr. Kimmins, the chief inspector of the L.C.C. Education Committee, enabled me to see something of the progress of the reform movement, and it is on some of the features connected with the ideas mentioned above that I dwell particularly in this article.

To take first a subject to which English schools have paid considerable attention—the teaching of natural science. The reforms introduced into English schools were described

in a very appreciative report published by Herr K. Fischer in 1901, and in the Hamburg schools excellent provision is now made for the pupil to work experiments himself. The old lecture rooms, where the pupils watched the teacher performing experiments, have given place to fully-equipped chemical, physical, and biological laboratories. The chemical laboratories were simply furnished, the tables not encumbered with shelves and bottles, and there was many a cunning device which revealed the fact that the skilled teacher had been given a free hand, and that he had profited by visits paid to other laboratories, particularly in England. Perhaps what impressed us most were the new laboratories in a girls' school (St. Johannis), where an enthusiastic professor, in his workmanlike white overall, showed us a physics laboratory with a quite remarkable equipment of modern apparatus, and a biological laboratory with a perfect museum of plants and stuffed animals attached to it. In three schools we saw that ingenious lantern at work which throws on to the screen pictures from books or postcards, thus eliminating the need of making lantern-slides, and in a normal school, where the new science block has lately been fitted up at a cost of £7,500, we were present at a lesson where the Röntgen ray apparatus was employed.

In several schools was a small workshop, well stocked with serviceable tools, so that suitable apparatus should, so far as practicable, be made in the school itself. There may be wood workshops for the classes to work themselves, but we did not see any in Hamburg, though we learnt that some schools are to introduce them. Possibly, as is done elsewhere, this woodwork will be voluntary and outside the ordinary time-table. In Munich, no doubt, and elsewhere, wood workshops are common enough.

Amplly supplied as the Hamburg secondary schools are with opportunities for the pupils to work themselves in the various laboratories, it is clear that a great deal has been done in science-teaching to develop the self-activity of the pupil, to cultivate self-reliance, and to combat the passive attitude of the pupil. No doubt the rich and progressive city of Hamburg must not be taken as a typical instance, for what obtains in all the twenty-six States which form the German Empire, and, indeed, what I have seen of German schools during the last five years, had led me to believe that chemical and physical laboratories, as we know them, were very rare.

The history lessons were generally of the lecture type, carefully prepared, well delivered, and illustrated with plenty of maps and coloured pictures—always a strong feature in

German schools. The independent work of the pupils is cultivated by frequent excursions to places of historic interest in the neighbourhood. Friedrichsruh, the home of Bismarck, is much visited by the Hamburg schools, and the school programmes contain accounts of excursions, some lasting three or four days. Of the study of sources we got an interesting example at Lübeck, where one of the masters had just produced a delightful selection of extracts from the chronicles of this most charming example of a city of the Middle Ages.

It so happened that in two girls' schools we heard the liveliest literature lessons—lessons in which the class took a very active part in the work, and where the teacher was rather a guide, a leader, an inspirer, than a lecturer. In one case the class had been studying Goethe's "Götz von Berlichingen," and while we were present the teacher, an old pupil of Gaudig, called upon various pupils in turn to ask questions, and then on others to answer. He himself seized opportunities to criticise and improve the questions and the answers. The various characters, Adelheid, Franz, Götz, Weislingen, the sources of the play, comparisons with other plays, provided questions. Certainly the pupils were no passive listeners; they were alert and eager, hunting around in their minds for questions, giving their own individual impressions, and never a thought as to whether their knowledge was to serve them on some future occasion to satisfy an examiner. In the other class the teacher and pupils were conferring together, in a sort of seminar, as to what work they should next undertake. The suggestion of Ibsen's plays was discouraged. "We can do better than study German translations of a Norwegian author." Epic poetry was mooted, and also the study of German folk-songs. After an animated debate the subject finally selected for the next few weeks—or was it months?—was the history of the novel. Here again the class was taking an active part in choosing the work and in controlling its progress. Self-reliance and independent activity were cultivated.

The reformers are at least as anxious about the physical development of the pupils as about the intellectual work, and during the last few years the interest in games has increased enormously. It would no longer be possible to maintain with a former Mayor of Wiesbaden, who was inveighing against lawn tennis and the scanty attire of the players, that "all English games are indecent." Some Germans even go so far as to lament that the interest is not so developed as in England, where "one may see on a Saturday afternoon thousands assembled to watch a game of football." We in England are not particularly proud of the fact.

Cricket, it is true, finds no foothold in Germany, though it is very popular, curiously enough, in Denmark. But football is gaining ground daily.

I understand that in Berlin the Association football teams can hold their own against good English sides, but the game as I have seen it played on hot August afternoons in Lübeck and Hamburg would have surprised our boys, and delighted the hearts of many a parent, by its leisurely and dignified character, which quite eliminated any element of danger. There are many other outdoor ball games unknown to us which are very popular. Swedish gymnastics is finding its way into the girls' schools. What I have seen of gymnastics in German schools appeared to me much inferior to the joyous exercises enlivened by songs which one sees in Denmark, for example.

The school journeys are, of course, a great help to the physical side of German education. One Saturday afternoon I happened to be passing the Hamburg railway station about four o'clock. The waiting halls were thronged with lines of boys and girls, two and two, with rucksacks on their backs and long alpenstocks in their hands. All these happy laughing youngsters were off to spend Saturday evening and Sunday amidst the heather round about Lüneburg. They carried blankets and overcoats; they had got quarters in barns and out-houses, and they were looking forward to a merry time, accompanied by teachers or other leaders. All teachers are, of course, not prepared to take on this voluntary work. "There is always the danger of an accident, and then I should be responsible," said a sad-faced teacher one day to me as we stood chatting on the gloomy staircase of a very depressing school.

Then there were the boy scouts, all lined up a side street, and very bright and healthy and competent these young "path-finders" looked, eagerly expecting, as one of them told me, the visit of English boy scouts in a few days. No one seeing these eager throngs off for their school journeys, or the youngsters with caps of various colours according to the class to which they belonged, as they hastened to morning school, or the laughing, jostling groups in the playground during the quarter-hour interval which came between the lessons—no one, I say, seeing these young people, would be much inclined to believe that the German schoolboy is harassed, overworked, and always haunted by the fear of not getting his yearly promotion, and ready, indeed, at times to seek refuge in suicide.

But there is a darker side of the picture which must be considered. The clever boy, even the boy of average ability, has probably

a happy school life. The boy below the average has troubles from which the English boy is exempt. If his work is unsatisfactory in one class he fails to get his promotion; that means a year longer at school. Then there is dismay at home, and he gets extra coaching in his home lessons. This he gets either from one of the teachers in a secondary school (they have in Hamburg a fixed tariff of six marks an hour; it is unprofessional to accept less) or from an elementary school teacher, or from another pupil in the school. This, I understand, is quite a common practice, and many a clever pupil helps to pay for his own schooling by giving private lessons. Frequently when a boy is not doing well at one of the State schools in Hamburg, he is sent to one of the private schools, which charge higher fees, and pay special attention to backward pupils. Or he goes to a crammer or presser to be prepared for the all-important leaving certificate at the end of his school course.

I have no space left to deal with one or two other developments of interest to English schoolmasters, such as the provision of free places and the increasing employment of women in girls' schools; but I ought not to omit one important fact. In Hamburg the assistants in secondary schools enjoy the highest salaries in Germany. Commencing at £225, the salaries rise to £550 with a pension. The schoolmaster is paid at the same rate as the judge—a fact which gives one cause "to think furiously"!

## THE TRAINING OF TEACHERS.<sup>1</sup>

By PROF. J. WELTON, M.A.

Professor of Education in the University of Leeds.

FOR nearly three-quarters of a century we have been familiar with the training of teachers in special colleges, and yet he would be a bold man who would affirm that the necessity of such training is commonly recognised. The general public cares nothing whatever about it; the professional public at most damns it with faint praise. It behoves us who have given our lives to this very work of training to ask the reason for this common attitude towards what we regard as so important. Is it due to the original sin of stupidity in those outside our own ranks, is it inherent in the nature of the case, or is it the result of mistakes of our own? Without venturing to enter on the first hypothesis, I believe that we can find an adequate explanation in a combination of the two latter.

Now, of course, it is very consoling to our

<sup>1</sup> A paper read at the North of England Education Conference, Nottingham, on January 4<sup>th</sup>.

professional self-love to lay the flattering unction to our souls that all who seek to become teachers are led to do so by the most lofty motives of social service. Doubtless such motives may be felt, and in many cases are felt more or less strongly, and doleful is the work of school when they are absent altogether. But they are, as a rule, ancillary and not dominant. People enter teaching, as they enter other professions, because they see in it a not too objectionable way of earning a living. If they get to delight in the work, so much the better both for themselves and for their pupils. But they do not know beforehand whether they will like it or not; they simply anticipate that it will be bearable, or they drift into it because while yet boys and girls they had won scholarships which had attached to them the condition of becoming teachers. Of their capacity to teach they never seem to doubt until they actually begin to try, and then they often find it hard to realise that the fault is in themselves, and not in their pupils, or in their surroundings.

Nor does it seem to me that this expectation that teaching comes by nature, so to say, is, on the face of it, very unreasonable. After all, the first requisite for teaching anything is to know it, and the second is to be able to communicate with others. But in the course of everyday life everybody is always communicating with others—telling them what they do not know, explaining to them what they do not understand. And is not this of the essence of teaching? What wonder, then, that one who feels sure that his knowledge is sufficient should expect that he can teach it to a class of school-children? What wonder that headmasters of schools, who have themselves never been "trained," and yet who recognise—often justly—the excellence of their own work, should be chary of demanding on the part of those whom they appoint on their staffs any further preparation than they themselves received? And so long as they fail to demand it, few indeed will go to the extra cost in time and money of seeking technical training. Why should they? It gives no professional preference; it is no help in getting on to the staff of a school, and after that promotion comes, if it comes at all, not because one has been through a training course, but because one has done unusually good work, or, at any rate, work that has won the notice of some who have promotion to bestow.

It is, then, not hard to understand why so few university men who intend to serve as masters in our great secondary schools seek professional training. They see clearly that it is unlikely to help them in securing professional advancement, and they see no grounds

for believing that it will make their work more efficient: that is not accepted doctrine in the schools in which they have been boys, and in which they wish to become masters. Evidently the opposite reasons lead a much larger number of women to seek training for secondary-school work, and the majority both of men and women who propose to teach in elementary schools to enter training colleges. In each case the training is a professional asset which has a value in the scholastic market.

Now, the greatest schools in England are officered by men who have not been trained, and the pioneers of the movement for higher schools for girls were in the same condition. I do not see, therefore, that it is possible to maintain that training is essential to the making of a good teacher. One may reach a very high level of skill without it, and another may fail to do so with it. In no case, it may be pointed out, will the skill be imparted during the training, for skill comes only with long practice under the conditions under which it has to be exercised. But in a training course the practice cannot be long, and the conditions can never be quite the same as those of actual school work. A student does not feel himself, and is not felt by anybody else—especially by the children—to be in the position of a regular member of the school staff. Doubtless, it is in the recognition of the fact that training and efficiency are not necessarily connected that the ground can be found both of professional scepticism and of public apathy in the matter of the training of teachers. If parents believed that their children would profit by being placed under the care of trained teachers, they would insist on trained teachers being engaged in the schools; if headmasters held a similar faith, no pressure need be brought to bear upon them.

Of course, it may be retorted that to acknowledge that the untrained A is a better teacher than the trained B is really not to the point, for the real question is whether A's excellence would have been yet greater had he been trained, and B's mediocrity yet more marked if he had not. This is logically true, but as there is no way of testing the matter by experience the assumption of an affirmative answer lies under the suspicion of begging the question. Anyhow, it does not seem to have much effect in convincing the sceptic. Indeed, there seems to be a suspicion that training actually tends to spoil the person trained—to make him mechanical, pedantic, and self-opinionated, less open to receive suggestion, less humanly sympathetic towards his pupils, whom he is apt to regard too much as material on which to exercise his formative influence.

This is really the charge we who are engaged

in training have to consider and to refute if we can, though, perhaps, it is not often put so candidly. If we cannot altogether refute it, let us frankly acknowledge that the objection does point to a danger which is hard to escape and is not always escaped, and let us set to work to set our house in order so far as is possible to us. No good work is ever helped by a refusal to see its weaknesses. It is useless to argue the question from an ideal point of view. We must get to the facts; and I, for one, do not feel able to affirm that there is no foundation for the charge. I have examined many thousands of answers of students in training on the theory and practice of education, and I have too often been most disagreeably struck with the apparent assumption that they were about to set forth on a missionary and reforming enterprise. "We," they seem to say, "are in the full light of wisdom, the schools are in various degrees of twilight, the parents are all in outer darkness." No doubt such an attitude may be assumed for the delectation of the examiner—though that would scarcely be a demonstration of the wisdom assumed—and the writer be really more modest than the answers written. Yet the possibility of this does show an attitude of mind which, unless it be rapidly changed by actual school life, can do nothing to recommend training to those who doubt its value.

But does training tend to make those trained pedantic and even mechanical? I am not sure that here, too, there is not some ground for the charge, and I am sure that it is a danger against which we have to be especially on our guard. For those we train are young, impressionable, and inexpert. The lessons given before them by those who are training them stand there, just models to be imitated. They are told to do this or that, and they have the vaguest idea as to why. They see a teacher give a successful lesson, and they attribute the success to the method and not to the teacher. So they try to reproduce the form of the lesson instead of to kindle in their own souls the spiritual fire which made it the good piece of work it was. What else can they do when their training includes practice from the very beginning?

The great argument advanced for training is that children ought not to be subjected to the experiments of the amateur. But there is no amateur quite so amateurish as the young student just beginning a course of training, and who has not the sense of responsibility of the amateur who is really to be the form-master and who must dominate his pupils or suffer martyrdom. After the student's "period" of teaching it is the regular teacher

who suffers the martyrdom. No matter what plan is tried, the beginner must always be a beginner; no training can make him an experienced teacher. But training can and should secure that his efforts be from the first made intelligently—by which I mean with a clear conception of the end they are intended to reach and of the conditions under which they may be expected to attain fruition. "Experience finds out a short way by a long wandering"; it is the part of training to shorten this wandering by making use of the experience of others. And that experience is all garnered in thought; it is what is known as theory of education.

Here we come to what I believe to be the centre of training-college work—indeed, the only valid reason for the existence of training colleges at all. It is that, removed from the carking cares of the school, the problems of school life and work may be thought out in the light of the wisdom both of the past and of the present—thought out on all their sides; from the point of view of conduct, from that of knowledge, from that of present and future service. It is the doing of this thinking for themselves, and not the mere continuance in teaching, which has made so many admirable teachers who, in the technical sense, have not been trained. In truth, by their own thought they have trained themselves. No one can read the lives and works of great schoolmasters without seeing how earnestly they thought about their pupils and their work. They "worked their facts, and not their theories," as Thring put it, but they *did* work them, and that not doggedly and mechanically, but as problems to be solved. So their work was embodied theory, and theory they had made their own in the only real way—by living it. This it was that made them great; and this was of the essence of training. But the great majority of people who take up teaching for the reasons I have already indicated are little likely thus to train themselves by assiduous thought on their work unless they are helped to do it before entering on the actual life of school. That, then, is the essential work of a training college.

To this all practice should be subsidiary—a kind of laboratory work, the amount of which is less important than its kind. A little work well prepared—and by that I mean really conceived and worked out by the student, though under the general supervision of the training teacher—and well considered and criticised by himself afterwards, does far more to develop that habit of mind and feeling which is the source of all skill which is artistic and life-giving, and not mere mechanical craftsmanship. A training college should, it seems to

me, aim primarily at giving an attitude of mind and feeling, at inculcating a few fundamental principles and securing that each student applies these in his own way. It then stands a chance of sending out not skilled teachers indeed, but those who are on the right road to the attainment of skill, and, what is far better, so see their work in its relation to the whole life of the community that they will be something much higher and better than skilled teachers—and that is, centres from which emanate spiritual life.

But I shall probably be told that good as theory may be, yet after all the training colleges exist to train teachers and, consequently, they must give as much time as possible to practice. I grant the premise, but I deny the conclusion. It is because I want to train teachers that I disagree. The obvious way is not always the best way, and I think that this is only another example of an error to which the "practical" Englishman is peculiarly prone—that the surest way to learn to do anything is simply to go and do it. It is so, broadly speaking, when the activity is one which both can and should be made automatic. But when it is a dealing with life it is not so at all. It is from the inner thoughts of the heart that really efficient teaching springs, and it is far less a matter of "method"—except in the broadest sense—than is often assumed. The training college has to see to the planting and nourishing of these thoughts of the heart, and it should use practice just so far as is necessary to make them real and concrete, lest they remain mere dreams.

But then the colleges will not turn out skilled teachers, it will be objected. Certainly not! Neither do they now, neither can they ever. On that point enough has already been said. It does, however, suggest this—that the training college should be regarded as only beginning the work of training in professional skill, and that that work should be continued in approved schools. There, under the guidance of competent masters or mistresses, the actual working out of principles, the becoming familiar with questions of organisation and discipline, and all else that makes the competent schoolmaster or schoolmistress, should occupy at least another year. Only then, in my opinion, should any examination in practical efficiency be held, and in that examination general observation of the student's work should loom much larger than the hearing of a set prepared lesson.

So, in conclusion, my position is that a training college is only one of the agents of training, and its course only a step in the whole process. Its students should, before entrance, have seen enough of school life and

work to know whether it appeals to them and to understand the matters to be discussed, but they should not have served on the staff of a school long enough to have become stereotyped and wooden. Its work should be essentially the development of an educative spirit and the apprehension of the fundamental means that spirit will use; in a word, theoretical, in the sense of being concerned with thinking and feeling more than with actual doing, not in the sense of being up in the clouds or disconnected with actual life; though we have theory it surely need not be bad theory. Then it should be followed by a training in school where the emphasis will be on that very practical effort which in the training college course should be subordinate. Surely, a very poor compliment is paid to the work of teaching when it is assumed that the art can be acquired in the seven or eight months of a training-college session.

We shall be in a false position so long as schools complain that the training colleges do not send out skilled teachers but people who have to learn their work, and the training colleges accept the assumption that the production of skilled teachers ought to be demanded of them. Both schools and training colleges need to appreciate more truly the function in teaching of vital and creative ideas, and to put mere dexterity in the "tricks of the trade" in its proper very subordinate place as an educative instrument. And vital ideas cannot grow in an ordinary mind while it is harassed by the minutiae of unfamiliar practical work, and filled with the trivial but disturbing details which accompany the efforts of the tyro in teaching. Let the training college course, then, be made the future teacher's spiritual preparation for his professional life.

#### THE CO-OPERATION OF EMPLOYERS AND EDUCATIONAL AUTHORITIES.<sup>1</sup>

By the RIGHT HON. SIR WILLIAM MATHER, Kt., LL.D.

**T**HE large majority of the children of the working-classes of from five to fourteen years of age depend entirely for their education and right use of life upon the instruction given in our elementary schools. I may say here, in passing, that I purposely ignore the half-time system, which permits children to begin to work at thirteen, because I am convinced that it must and will be abolished very soon. Such children are compelled to attend school under rigid laws, which render their parents liable to severe penalties if they do not fulfil their obligations. The result is that upwards of five

<sup>1</sup> From a paper read at the North of England Education Conference Nottingham, on January 4th.

millions of children are under the absolute control of the education authorities for their physical, moral, and mental training during the most impressionable and plastic years of growth; and it is upon this early training that the future of each child must depend, if he is to arrive at that perfection of which his nature is capable. This must therefore be regarded as the most important period of life. If his early training be based on true principles, it will make for true manhood. It will render harmless, in many cases at least, the unhappy environment of home life and associations outside the school; and will, to a great extent, enable all children to enjoy equal opportunities of overcoming the difficulties that may surround them when the compulsory school age is passed.

For the vast majority of the five millions of children there is no outlook but that of immediately seeking employment in order to earn wages; but happily ample provision may be made by education authorities—and it is being largely provided in evening continuation schools for this class of the population—to conserve the educational results of the primary schools and to develop further the immature faculties of the children.

It is with this class, at this age, as regards the great majority, that employers of labour have to deal. They are employed in all the branches of industrial occupations, skilled or unskilled. The age at which children leaving school are legally permitted to be employed is happily higher than it was a few years ago, but in justice to the children it is still too low.

Under present conditions, all employers who largely depend upon the services of very young people are under a moral obligation to encourage and make provision for their continued education in the evening continuation schools and classes, now available under the direction of the education authority.

I am bound to say, on behalf of employers, that the education given in our primary schools has not impressed us with a very high regard for its general results, though we gladly recognise that there are good elementary pupils, especially those doing pioneering work, who deserve the highest praise. But we have reason to complain of the want of aptitude and intelligence, application and interest, displayed by a considerable majority of the boys and girls coming to work direct from the elementary schools. They seem to have little ambition to excel in what they are required to do. The ardour, zest, and curiosity natural to youth in the normal condition of health and strength are not distinguishing traits. The majority seem to look on life with vacant eyes and minds.

Nature in all her tempting beauty is to them comparatively a closed book. They have little power of thinking for themselves, or of desiring to know the why and wherefore of the simplest operations of the everyday occurrence of common life. There is ample evidence that the school work and training have not increased the joy and brightness of their lives, though there are some children, of course, blessed with superior parents, who are gifted with inherent qualities that lift them out of the depressing influences of their environment.

The duty of the employer, however, in assisting the education of the children at this early stage, would appear to be all the greater than if they were to come to him at a later age and after a longer school life, and better furnished with intelligence and eagerness to improve themselves.

It is a truism to say that there should be no lapse of educational training till every boy and girl has arrived at seventeen or eighteen years of age. For those, therefore, who are employed at the early age of fourteen years, it is absolutely imperative, if they are to become of real value to themselves and their country, that they should be induced or compelled to avail themselves after leaving the primary schools of the opportunities provided in the evening continuation schools.

Under present conditions, we are told, in many industries the labour of children is indispensable, partly owing to its low cost, and partly to the fine sense of touch and agility of their fingers.

If child labour pays the employer, he is morally bound to see to it that the children shall not lose, in supplying his wants, the opportunities of mental, moral, and physical growth in schools provided for the purpose. The co-operation of employers and education authorities is, therefore, obviously necessary.

There is some cause—and I think it is a removable one—for the reluctance of the children to attend evening schools. Some form of compulsion is needed to induce the young people to place themselves under school discipline, and to ensure their attendance, after they have gained their freedom from that of the elementary school. A compulsory law might possibly be enacted to enforce attendance at continuation classes; but it would probably excite much opposition, and be received with some resentment.

I believe there is no influence so powerful in controlling the continuous education and training of youthful workers as that possessed by their employers; and the latter have every inducement, even from a selfish as well as a patriotic point of view, to co-operate with education authorities in this desirable object.

On the one hand, they see the good effects on those of their young workers who voluntarily attend the continuation school; on the other hand, they know how the absence of any effort towards self-improvement and education deteriorates and depreciates the value of those who disregard the school.

The obligations and responsibility resting on employers being admitted and expressed in the laws of the land, so far as proper provision of hygienic and sanitary conditions and hours of labour are concerned—is it too much to require them to assist the education authorities in ensuring that the children they employ shall not lose all the benefits of their early training?

I would strongly urge you to make evening continuation schools more attractive, and suitable to the needs of the young people who ought to attend them. The schools differ in this respect in various parts of the country. If the best of them could be made universal, no doubt a larger number of boys and girls would attend them voluntarily. As a whole, however, our system of evening schools has received the high praise of our foreign visitors interested in education, and they are indispensable to the English industrial classes.

It may be frankly and truthfully asserted that employers as a whole—though there are numerous exceptions—have not yet shown that deep interest in, or made any effort towards, assisting the promotion of efficient education in these evening schools, which efficiency must so largely affect the young workpeople who attend them.

Moreover, if the numbers attending these schools could be increased, the greater demand would certainly enhance their efficiency by encouraging education authorities to spend more money on them, and to make them more fitting for their purpose.

The form of co-operation of employers with the education authorities should principally consist in compelling the attendance of the children entering their employ at some evening school or classes. The employer should make it a condition incumbent on their parents or guardians, as well as on the children themselves, that the latter must attend evening schools and take regular courses of instruction under the direction of the education authority (or in other equally good schools) three or four times a week. If this condition were not complied with, the penalty, in the last resort, would be to discharge the child—of course, after repeated warning and advice had been in vain. This is a gentle form of compulsion, in which there need be no hardship; nor would it interfere with the freedom of the child, though it

would strongly induce him to submit to the desire of his employer.

I have had this system at work for many years with complete success, first of all at an evening school that I started at my works, for the purpose of accommodating the number of boys of fourteen years of age whom we took into our employ. (I am speaking of more than thirty years ago.)

When the boys were too numerous for the accommodation, and when, moreover, the evening continuation schools, under the direction of the Science and Art Department of South Kensington, and subsequently under the local education authorities, began to supply the necessary instruction, I transferred them to those schools.

It was, and still is, a rule that every boy coming to us at fifteen years of age—we do not now take them younger—must attend these evening classes three evenings a week. These classes are capable of leading the boy from general elementary subjects in the first year through elementary technical instruction after a while, and finally through technical or commercial courses up to twenty-one years of age. The rigid condition under which he is employed at all is that this school attendance shall be maintained. Each boy's record is kept; if negligent, he is warned; if incorrigible, he is discharged at any period of his apprenticeship or employment.

Among the many hundreds of boys who have grown to men during a quarter of a century, I have known none who resented these conditions; very few who disregarded them; and not one, so far as I have been able to ascertain, has proved a discredit to his training or his country. Indeed, many who were the sons of very poor parents, and in some cases, I am sorry to say, bad parents, and whose home life was very unhappy, have risen to positions of high responsibility and remuneration. This is my own experience of the plan I am recommending, and I do not think it is a singular one; for, of late, employers of labour have been more mindful of their responsibilities.

But it points to a method of general co-operation of all employers with all education authorities; and I commend it to your consideration as a means you might use of applying compulsion of the most effectual and unobjectionable sort, to save young people, on leaving the elementary schools and beginning to earn money, from falling, as they do in many cases, into habits which only promote their own ruin, and becoming as men and women a burden instead of a blessing to the country.



This, I submit, is a matter of grave importance to employers of labour, and were it an established custom, it would be of great benefit to them in the long run.

It is remarkable that we should have so long neglected this obvious obligation and advantage. We are ever on the lookout for the best materials to use in our manufactures of various kinds; we search the world for the best raw products that we require. The newest developments in machinery and apparatus are eagerly adopted. Everything that helps us to compete with foreign nations abroad, and with each other at home, is immediately investigated. Our old processes are abandoned for newer and more efficient ones. No progressive industry is without its scrap-heap.

And yet we seem to regard the preparation and training of the human factor in our industrial operations with less interest than we do the other elements, whereas it is the greatest and most precious of all. From an exclusively selfish point of view we ought, with all our might and main and means, to provide for the supply of the best quality of this element, above all other necessities, in perfecting our productions. This human element at its best is the staying-power of all industry. It consists of character, intelligence, trustworthiness, good-will, loyalty, energy, good sense and skill, without which all industry would languish and fail. It is only in the degree that these qualities are found nowadays in those we employ that real progress can be made and success achieved. Yet it has been hitherto characteristic of England that she has neglected this element in the development of her industry and commerce, during the palmy days of her undisputed monopoly of supplying the world's wants, to an extent that has astonished her foreign and successful competitors in recent times, notably America, Germany, France, Switzerland, and even the minor States of Norway, Sweden, Holland, and Denmark.

One reason of this may be that the British race (especially the working classes) possesses these qualities in a more or less crude form as natural propensities; and, though not refined and cultured by education, excelled in the absence of serious competition, and with a bountiful supply of natural resources it held sway in the commercial world until the competition began to be felt. But the field of industrial productions is now opened to all nations. Old things are passing away; all things are becoming new.

In the countries I have named, the human element in industrial production has long been recognised as the chief factor, and infinite pains have been taken to develop, through

educational methods, its best qualities, long before other conditions fitted these countries to become our competitors.

It is sometimes alleged that the intelligent human element is not required in these days of rapid mechanical production. My own experience is exactly the reverse of this. A much more highly cultivated intelligence is required, though not in the same direction. There is a great dearth of working men qualified to meet the demand created by the enormous rapidity of production of infinitely greater perfection than would have satisfied the world thirty years ago.

The work to be done is no longer drudgery, or exacting in the animal sense; but thought, intelligence, alertness, and care are needed in the adjustment of the work to be done to the mechanical means of doing it; or the machinery employed to save labour will more rapidly spoil work than the human hand could do. We have not anything like the supply to satisfy the demand for men combining industry with intelligence, character, and the elementary technical knowledge easily to be acquired in proper schools.

This is not the time and place to elaborate the causes that have led to this fact; but you who are concerned in education may take it from me that your efforts were never more urgently needed to improve and develop the best faculties and capacities of human nature than they are to-day.

Every employer, therefore, in Great Britain should bestow some portion of his time and means in assisting you in promoting the education of the best faculties of the young people he employs—the practical, the intellectual, the moral, and the reasoning—to form men and women of character and intelligence, for efficient service all through life. The seed from which these qualities must grow is to be sown in our elementary schools; the growth must be fostered without a break in our continuation schools.

The co-operation of employers in adapting the instruction in the evening continuation schools and classes to the needs of the times, and in making them efficient, would be of great value. The employer is answerable to his country, to a large extent, for the welfare of the children he employs—since he finds it to his material advantage to employ them, and profits by the work of their delicate hands. Had it not been for the widespread inducements offered to parents to gain money through the labour of their children of tender years, the compulsory school age in 1872 would have been fixed, then as now, at fourteen years—and fifteen years would be none too high. How much, alas! has the nation lost since then!

### APPARATUS DESIGNED BY SCIENCE MASTERS.

THE Association of Public School Science Masters held its annual meeting and exhibition of apparatus and books at the London Day Training College in January. Most of the leading firms of apparatus makers regard this exhibition as the most important in the year, for their exhibits are carefully examined, not only by teachers of science and mathematics, but also by many others who are interested in the teaching of these subjects. This year much new and striking apparatus was shown, and the opinion was general that the exhibition was the best that has taken place in connection with the association.

Among the numerous useful apparatus shown by members were a new form of steam heater and a potentiometer, exhibited by Mr. Douglas Berridge, Malvern College. The steam heater consists of a copper test-tube brazed into an outer jacket of copper. From a point near the top of the jacket runs a narrow copper exit tube for the escape of steam, and into the side of the jacket near the base enters a wider tube, by means of which the jacket can be filled, but not overfilled, with water. The substance to be heated is placed in the test-tube, and the apparatus is heated on a wire gauze. There are no valves to close after heating, the copper test-tube is quickly warmed, and the student has simply to invert the heater (no water can escape with the apparatus in this position) in order to get out the heated substance. The heater is very cheap, and it should be useful to teachers of science. It can be obtained from Messrs. Philip Harris, of Birmingham.

The potentiometer shown by Mr. Berridge has the wires carried past the binding screws to a peg by means of which the tension can be regulated, so that sagging of the wires in hot weather can be done away with. As full contact is made at each binding screw, the additional length of wire carries no current.

A very simple and cheap form of constant immersion hydrometer was exhibited by Mr. W. H. Topham, of Repton School. One hundred small steel balls of uniform weight (cycle bearings) are weighed. A piece of glass tubing of about 15 mm. diameter is closed at one end in the blowpipe flame, and the closed end thickened slightly. Its weight is then found, and a piece of it weighing about a gram less than 100 balls is cut off. This is counterpoised against the balls, small leaden shot being put into the tube to equalise the weights. The end of the tube is then heated until the shot are fused to the glass. The tube is next drawn out into the shape shown

in Fig. 1, and the level at which it floats in water is marked on the neck. If the tube is put into a liquid of specific gravity 1.21, it will sink to the mark when 21 balls are dropped in. The fused lead breaks the fall. Thus, the number of balls required indicates the specific gravity of the liquid, and the relation between the upthrusts of equal volumes of liquids of different densities is made clear. For liquids lighter than water, a tube equal in weight to 50 balls, which just floats in water with a load of 50 balls, can be used.

Several pieces of apparatus for the determination of the coefficient of linear expansion of a solid were exhibited. That shown by Mr. Eccles, Gresham's School, Holt, is intended for lecture table experiments, and is a modification of an apparatus devised by Dr. Shaw, of University College, Nottingham. It consists of a metal tube attached horizontally to a wooden stand, and kept tightly pressed against a solid buttress by means of a spring. Against the metal tube at the other end of the stand is placed a micrometer reading to 0.001 cm. Steam can be passed through the tube, and its temperature measured by two thermometers passed through holes in the tube. Steam is first passed, and the micrometer adjusted and read. Contact is obtained very accurately by means of an electric circuit. Cold water is then passed, and a second reading is taken. The results for copper lie between 0.000016 and 0.000017.

The apparatus shown by Mr. W. J. R. Calvert, Harrow School, gives still more accurate results. A metal bar is supported at two points some distance from the ends, such supports preventing errors due to change of rigidity of the bar with temperature. The error due to sagging is thus avoided. The bar lies between two pieces of "invar," the total expansion of which was found to be less than 0.01 mm. for a rise in temperature of 100° C. The pieces of "invar" pass easily through the corks of a glass steam jacket, one of them being in contact with a fixed stop and the other being fitted with a spring. The increase in length of the metal bar is read with a micrometer microscope, a fine scratch being made for this purpose on the "invar" piece. The

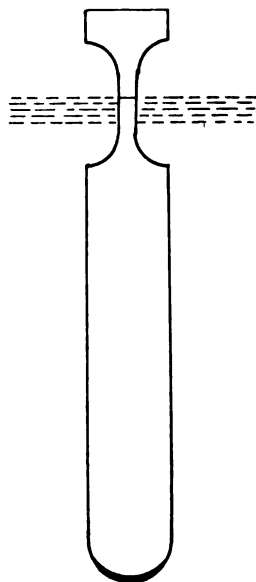


FIG. 1.

difficulty of getting good contact between the bar and a micrometer screw is thus avoided. An additional advantage is that the bar is completely surrounded with steam or water. The accuracy attained is within 1 per cent., *i.e.*, greater than the accuracy of ordinary temperature measurement.

Mr. Calvert also exhibited a useful lecture apparatus for showing the changes in length which an iron bar undergoes when it is magnetised. One end of the bar is clamped and the other end rests on a small roller, to which is attached a long light arm. A small mirror is supported by a bifilar suspension, one thread being fastened to the long arm and the other to a fixed point. The magnetising coil is attached to the bar itself, so that the change in length in the bar is not masked by the tendency of the bar to set itself in a certain position with respect to the coil. In order to show that the effect is not due to heat, a bar of non-magnetic material is first used. The magnetising current is only maintained for a moment. With this apparatus it is found that (1) for small magnetising forces the extension is more or less proportional to the force; (2) for greater forces the extension becomes less, and is zero for a certain value; and (3) for forces above this value a retraction takes place. These results are in agreement with those of Shelford Bidwell, obtained in his investigation of the strains accompanying magnetisation.

A simple model of the celestial sphere, exhibited by Mr. P. Haswell, Giggleswick School, should prove valuable to teachers of elementary astronomy. The sphere consists of a round-bottomed flask of about three litres capacity, around which are placed bands representing the ecliptic and the equator, and on which are marked with small paper discs a number of constellations. Through the middle of a cork in the neck of the flask passes a glass rod, which represents the axis of the earth, and in the flask is sufficient coloured liquid to fill it, when inverted, to the level marked by the equator band. The coloured liquid, when the axis of the sphere is inclined at the proper angle, marks the horizon, and the rising and setting of the sun and constellations can be shown by rotation of the flask. Mr. Haswell also showed a mount for glass filter pumps. The pump is mounted on a wooden stand, which can be moved at will about the working bench.

An apparatus for finding  $g$  was exhibited by Mr. A. R. Laws, Royal Grammar School, Newcastle-on-Tyne. Young and inexperienced students can obtain good results with this apparatus, and the experiment has much

educational value. The outlet of a ten-litre aspirator is fitted with a horizontal piece of quill tubing, and in the neck is put a cork carrying a Mariotte's tube. The aspirator is filled with water. In front and slightly to one side of the horizontal jet, there is fixed vertically a drawing board, on which is pinned a piece of paper. The student makes on the paper a graph showing the path of the stream of water issuing from the aspirator. The horizontal velocity of the issuing stream is determined by measuring the sectional area of the opening and the flow per unit of time, the latter being kept constant by means of the Mariotte's tube. From the graph the perpendicular fall per unit of time can be determined, and from this the value of  $g$ .

A "Pigmy" electric heater, shown by Mr. Laws, may prove useful to the lecture table. The heating effect of two bunsen burners of the same pattern is not identical. With the "Pigmy" heater, two or three small beakers can be heated at once, and the heat supplied to each is practically the same. The difference in the specific heats of alcohol and water can readily be shown by warming on the heater beakers containing equal weights of these liquids, and noting the temperatures attained.

Two pieces of apparatus which can be used in the teaching of physical geography or elementary geology were shown by Mr. F. M. Oldham, Dulwich College. To demonstrate the formation of earth pillars capped with their protecting stones, a wooden box about 6 inches deep, and with sides about 8 inches long, has one of its sides removed. Ordinary garden soil, containing stones of varying size, is packed tightly into the box. Water from a jet is forced upwards to a height of 7 or 8 feet, and allowed to fall in the form of drops (rain) on to the soil in the box. The soil, where it is not protected by the stones, is washed away by the rain, and earth pillars several inches high are formed in a few minutes.

To illustrate the formation of a waterfall in alternating hard and soft strata, Mr. Oldham showed a piece of apparatus which consists of a flat piece of wood, into which are fastened three upright pieces of glass. There is formed a box, 12 in.  $\times$  6 in.  $\times$  6 in., of which the top and one end are missing. The box is filled with layers of stiff clay alternating with layers of sand or soil—the layers dipping at an angle of about  $15^\circ$  towards the closed end of the box. The surface of the alternating strata slopes at a small angle towards the open end. When a gentle stream of water is directed down the sloping surface of the strata, the sand or soil representing the soft stratum is quickly washed away, and a waterfall is produced at

the surface junction of the hard and soft strata. Undercutting of the hard stratum is clearly shown. The apparatus, made by Messrs. Townson and Mercer, can be used again when the sand or soil has been replaced.

One of the most interesting exhibits was a wire-testing machine shown by Mr. Talbot, headmaster of the Royal Grammar School, Newcastle-on-Tyne. The wire to be tested is clamped in a pair of jaws at each end of the apparatus. The jaws at one end are fastened by steel tape to the axle of a worm wheel, which is turned by an endless screw, the stretching force being thus applied. A steel tape passes from the other pair of jaws over a steel rod carrying a heavy pendulum. The steel rod, when the stretching force is applied,

mounts slightly by rolling upwards on the vertical knife edges holding it. Friction is thereby minimised. The force on the wire is measured by the angle through which the pendulum is moved, and the extension of the wire is measured by a depth gauge, as described in Wells's "Mechanics." Young's Modulus can be accurately measured by means of this apparatus. Since the machine is only about three feet long, it can be used as a bench experiment, and it should, therefore, be very useful in laboratories where it is difficult to fit up the long vertical wire commonly used for the determination of Young's Modulus.

A very neat form of Boyle's Law apparatus was exhibited by Mr. H. R. Yates, Royal Naval College, Osborne. A U tube

has one limb of glass, accurately graduated, and the other limb of iron. The glass limb is connected to a pressure gauge, and the iron limb is closed by a removable and air-tight cap carrying a cycle-tyre valve. Coloured water is put into the U tube, and the cap is screwed on. The apparatus is shown in Fig. 2. By means of a cycle pump, attached to the valve, the pressure of the enclosed air can be increased and its volume decreased, the pressure and volume being read directly from the pressure gauge and graduated tube. The apparatus is made by Messrs. Pye and Co., Cambridge.

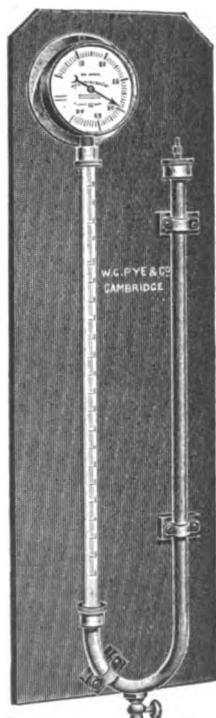


FIG. 2.

#### PERSONAL PARAGRAPHS.

THE Teachers' Registration Council has appointed as its secretary Mr. Frank Roscoe, lecturer on education and master of method in the Training College for Men at Birmingham University. Mr. Roscoe was a pupil teacher at Bolton from 1885 to 1888, was trained at the Borough Road Training College, and after going to Sheffield for a short time returned to Borough Road as master of method. He next went to Balliol College, Oxford, and, after graduating, had charge of the University Training College for Elementary School Teachers. Mr. Roscoe has been at Birmingham twelve years, and is a member of the Education Committee.

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MR. ALFRED H. ANGUS has been appointed headmaster of Tettenhall College. Mr. Angus was educated at Hutton Lowcross, Guisborough, was a master there for five years and at Harrogate College for four years. He then became headmaster of the George Dixon School at Birmingham.

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THE governors of Ruthin Grammar School have appointed to the headmastership Mr. E. W. Lovegrove, who has for the past six years been headmaster of Stamford School. Mr. Lovegrove went from Merchant Taylors' School, Crosby, up to Oxford, where he obtained first classes in mathematical moderations, and in the final mathematical school. He has been a master at Giggleswick, Friars' School, Bangor, and Trent College, and headmaster of the Humberstone Foundation School at Clew.

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THE REV. C. G. DUFFIELD, who has been a headmaster for twenty-one years, seven at Appleby School in Leicestershire and fourteen at Maidstone Grammar School, has been nominated by the Archbishop of Canterbury to the rectory of Stowting, Kent. Mr. Duffield was educated at City of London School and Queen's College, Oxford; he was for fourteen years a master at Cranleigh School, and has edited a number of elementary Latin and Greek texts.

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THE governors of Mill Hill School have granted Dr. McClure six months' leave of absence; he is to resume his duties in September. Dr. A. S. Way, formerly headmaster of Wesley College, Melbourne, and latterly an examiner and inspector for the Welsh Central Board, is to act as locum tenens while Dr. McClure is away.

MR. R. G. ROUTH, senior assistant-master at Bromsgrove School, has been appointed headmaster of the same school. The governors have thus followed the example of those of Winchester, Berkhamsted, and Caterham in promoting one of the men on the staff; on the other hand, the London County Council has, in the instance of at least two schools, refused to approve the selection of the governors when they nominated masters already in the schools.

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EVERYONE connected with education in this country will feel that in the death of Canon Bell education has lost one of its truest friends. From 1865 to 1868 he was second-master at Dulwich College, from 1868 to 1876 headmaster of Christ's Hospital, and from 1876 to 1903 Master of Marlborough. As an Almoner he took a prominent share in the work of removing Christ's Hospital from Newgate Street to Horsham. He was one of the earliest members of the Headmasters' Conference, and was always to the fore in any movement for the improvement of national education. The first Teachers' Registration Council elected him its chairman, and for many years after its foundation he was the chairman of the Federal Council. All those who have worked with him on any committee or in any capacity will long remember him for his tact and sympathetic kindness; he was one of those men who, though effective, never made an enemy and never lost a friend.

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MISS MAYNARD, mistress of Westfield College, will resign her post at the end of the summer term. She will then have held office for thirty-one years. She was one of the earliest students at Girton, and was one of the first two women to take the Moral Science Tripos. After teaching for a short time at the Ladies' College, Cheltenham, she went to St. Leonard's School at St. Andrews. In 1882, when Westfield College was founded by Miss Dudin Brown as a resident college for women preparing for the examinations of the University of London, Miss Maynard was appointed principal.

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THE headmaster of Friars' School, Bangor, has been speaking his mind. The list of honours certificates under the Central Welsh Board is this year larger than that of any other school in Wales, and yet only two prizes were awarded, and those were given by a private benefactor. In commenting on this, the headmaster is reported to have said: "Amidst all

the welter of incapacity, trickery, and, I will deliberately add, of fraud which is characteristic of Welsh education, let us work honestly; and if everybody rises to the occasion it will not be long before Friars' is reinstated in its old position."

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A NUMBER of educational associations combined and held their meetings at the University of London; apart from the general meetings of the associations, most of the meetings were open to the members of all the associations. One of the subjects of discussion was apparently suggested by the Royal Commission now sitting on the Civil Service. Miss Sheavyn spoke only of the First Division, recruiting mainly from Oxford and Cambridge, and Dr. Burnett of the junior appointments on the Second Division. Much of the evidence given before the Commission appeared to be ignored, and both schoolmasters and examiners, with an intimate knowledge of these examinations and their results, remained in the background.

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AT the dinner given by the Fishmongers' Company to the Headmasters' Conference, the Prime Warden of the company, speaking of the relation that should exist between masters and boys, read an extract from a letter written in 1888 by a famous Eton master, Mr. W. Johnson: "A. J. B. says I was the only usher there that did his mind justice. He was the only boy that ever got out of bed on a horrid morning, when excused early school for a bad chest, to get knowledge. He came, quite unasked, to hear me explain a miscellaneous examination paper, and it was the best compliment ever paid me as a teacher. Arthur, I am told, sleeps through Harcourt's invectives and grows fat under the worry."

\* \* \*

CANON SWALLOW, who has succeeded Dr. H. J. Spenser as chairman of the Headmasters' Association, has been a prominent member of the Federal Council; he has served on many, if not most, of the conferences and committees representative of head- and assistant-masters, and is still a member of the Joint Pensions Committee formed at the suggestion of the President of the Board of Education, the committee the officers of which gave the first evidence taken by the Departmental Committee on the subject of pensions for teachers in secondary schools.

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THE Assistant-masters' Association celebrated its coming of age by inviting its former officers and a number of distinguished guests

to dine at the Waldorf on January 2nd. Among former officers present were a number of headmasters, education officials, and Mr. Fabian Ware. Among the other guests were Dr. McClure, Major Meiklejohn, Prof. Spenser Wilkinson, and Sir Amherst Selby-Bigge. Sir Amherst was heartily congratulated on his inclusion among the K.C.B.'s in the Honours List of the previous day. Readers of THE SCHOOL WORLD will know that he was a fellow and lecturer in philosophy at University College, Oxford, an assistant Charity Commissioner, and principal assistant secretary of the Elementary Branch of the Board of Education before succeeding Sir Robert Morant as Permanent Secretary.

ONLOOKER.

## TOPICS AT THE EDUCATIONAL CONFERENCES.

### THE MONTESSORI METHOD.

NOT unnaturally, the Montessori method of teaching was given the first place on the programme of the London County Council Conference. Mr. Cyril Cobb, the chairman of the London Education Committee, sounded a note of warning, and in his opening remarks asked the very pertinent question: Is this method really a new thing, or has Mme. Montessori only restated old methods in a modern and scientific form? But that London teachers may have the benefit of any advantages of the new system, a headmistress of a London infant school has, he said, been sent to Rome to study the Montessori method.

Mme. Pujol-Ségalas, who has for two years conducted a school in Paris on the Montessori method, read a paper on the function of the teacher in the education of young children. She said Mme. Montessori's work has marked a turning-point in the history of education. What is, she asked, at the root of it all? We all feel that there must be liberty for the children to expand physically, mentally, and morally. Still, a cry of alarm has been raised against what is thought to be a new religion under an Italian prophet. Opponents fear dogmas, and they are right in that. But the danger does not lie here. Mme. Montessori insists upon spiritual freedom for the child. The main principle of the Montessori method is that the teacher should generally remain in the background. There are no set rules; but anarchy is not the result. A child is not allowed to transgress against the common welfare. If teachers interfere too much they produce apathy in the child. If they have faith in the better and stronger nature of the child, more knowledge and greater self-control will be the result. If teachers endeavour to live the child's life for him, they will be a hindrance rather than a help to him. Compulsion is not discipline. Real discipline is the capacity for self-control, and it increases with knowledge. We must consider the quality and not the quantity of knowledge. We should not teach too

much, and we should let the children learn by themselves much more. If the children are interested in their work, mental concentration will become easier. The teacher ought not to absorb the child's attention nor attract it too often.

### THE TEACHING OF ECONOMICS.

At the London County Council Conference, Mr. F. R. Hurlstone Jones, headmaster of the Holloway County Secondary School, read a paper on economics for schoolboys. The study of economics, he said, helps to bridge over the gulf between the school and the world outside, and enables a boy to tackle the social problems around him and not merely take the opinions of others. To foster this independence of opinion is by no means an easy matter. A two-years' course from fifteen or sixteen to seventeen or eighteen is part of the regular curriculum on the higher commercial side at Hackney Downs School, and is accompanied by a course in economic history and geography. After a brief examination of the scope and method of economics, the boys critically examine certain standard terms, such as value, utility, cost of production, price, and so forth, comparing their everyday sense and the strictly economic interpretation. The discussion of price leads to money, a survey of its history, systems of money, substitutes for money, and so on; and to the use of credit, thus paving the way to a consideration of past and present banking. Then follows an examination of the money market, so that some idea of the interconnection between the various factors of exchange can be seen. The different rôles played by the Stock Exchange and banks are also compared, and then the class is led on to a discussion of imports and exports. The question of tariffs introduces the subject of taxation, its principle, its necessity, and its effects. Then the limitations of municipal and national enterprise are discussed, and that brings to the front the idea of the national dividend, its produce and distribution. After two years the boy is fitted to take an intelligent interest in his own affairs, those of the local authority, and those of the central Government. The object is to furnish a basis for further study and sow the seeds of a future power of discrimination. The objection that the subject of economics is too abstract for schoolboys vanishes after some experience. The further obstacle that it is impossible to teach these subjects without bias is difficult to surmount. But since it has been said that it is impossible to teach even mathematics without the bias of the governing classes, economics, at any rate, is in no worse a plight.

### THE NEED FOR UNTECHNICAL LANGUAGE.

In welcoming the educational association which met in conference at the University of London during the week beginning January 6, Sir Henry Miers, F.R.S., the principal of the University, referred to the specialisation in the organisation of education and to the need for simple language in discussing educational subjects, if the public is to be got to understand. As specialisation increases, he said, not only does it become more difficult for any individual to

master more than a very limited branch, but it becomes more difficult for the workers in one field even to understand the workers in another field. In science it has gone so far that each specialist is now obliged, in order to be understood by his own faculty, to use a special language which is becoming almost unintelligible to the rest of the world. There is a similar danger in education. In science there are many people so small-minded that they really glory in this. At the British Association meetings it frequently happens that people are misled by the titles of papers. Large and simple ideas can be expressed in untechnical language, and can be made intelligible not only to experts, but to the country at large. It is most important that the lay public should understand what is being done, thought, and said by those who are educating the children. From the old extreme in which anybody could be a teacher we are running a danger of passing to the other extreme, in which none but the professionally qualified could either engage in education or profess to understand educational matters or interfere in educational efforts. There is a danger lest parents and others should be willing to hand their children over to the teacher, leaving the entire responsibility with him. There is a danger lest this should react upon the child also, that the child should too easily be led to act a double life. The public must be taught that it has a responsibility in these matters, and must understand what teachers are trying to do. It is equally important that children should not expect teachers to do everything for them and to do nothing for themselves.

#### SHOULD TEACHERS BE CIVIL SERVANTS?

Dr. M. E. Sadler, Vice-Chancellor of the University of Leeds, opened a discussion on "Should Teachers be Civil Servants?" at the opening meeting of the united conference held at the University of London early in January. He said that one current of public feeling in England runs at the present time rather strongly in the direction of making teachers Civil servants. Education, it is felt, is a national, rather than a local, service. It is believed by many that the position of the teachers in the community would be improved as regards remuneration, conditions of tenure, and retiring allowances if the teaching profession became a branch of the Civil Service of the kingdom. This view is taken by a large number of secondary-school teachers, who chafe under the present conditions of their employment, and realise how much the country would gain, intellectually and economically, from a highly competent corps of secondary-school teachers, devoting their lives to their profession, adequately paid, and guaranteed against an old age of poverty or against family disaster in the event of their premature death. On the other hand, opinion in the teaching profession as a whole is less favourable to the Civil Service idea than was the case ten years ago. The headmasters and headmistresses of secondary schools are, with rare exceptions, against a drastic change in their present civil status. Among the assistants in secondary schools there is a large body of opinion favourable to the Civil Service idea.

As for the great local education authorities, county and municipal, there are no signs at present of any general desire to see the right of appointing and dismissing teachers taken out of their hands. Dr. Sadler is reluctant to believe that it will be to the advantage of English national education to convert the teaching profession into a branch of the Civil Service. The greatest improvements in education have sprung from freedom of experiment and from liberty of individual teachers or groups of teachers to work out educational ideals in conformity with their personal convictions and personal experience. State effort in education, though indispensable under modern conditions, is apparently sterile in new ideas, and tends to stifle individual experiment by the mere weight and momentum of its machinery. In conclusion, he said, if one branch of the teaching profession were given the status of Civil servants, all three branches would have to be brought under a similar administrative change. This would make the operation colossal in scale and comparable to the nationalisation of the railway service. Any attempt to make the teaching profession a branch of the Civil Service would raise, in an acute form, the religious question in elementary and secondary education. England could not be treated alone in such a question as the conversion of teachers into Civil servants. The interchange of teachers between England, Wales, and Scotland is so widespread that administrative difficulties would at once arise, unless a great change in the status of English teachers were followed, at no long interval, by corresponding changes in Wales and Scotland.

#### THE DANGER OF FADS.

Mr. W. D. Bentliff, the president of the National Union of Teachers, read a paper at the North of England Conference on primary-school education and after-life. Towards the close of his remarks he said: "Dr. Gow was undoubtedly on sound educational lines when he advised a good general education up to the age of sixteen years as the necessary preliminary to any subsequent specialisation. What Dr. Gow has thus preached as necessary for the secondary-school child up to the age of sixteen, I have no hesitation in preaching for the primary-school child up to the age of fourteen. It is becoming increasingly necessary to preach this. The Board of Education is advocating special instruction in mining for the children of mining districts, a former Minister of Education has recently said that children in agricultural districts should use carrots for counting, and generally there is an undesirable tendency to bias towards particular callings. As a preparation for 'after-life' our primary schools are in urgent need of a close time from faddists. At present the teachers are scarcely trusted to use their own expert knowledge in the schools they are trained to teach and direct. The amateur and the faddist are let loose upon them. One brings pressure to bear to insist on the introduction of hand-work everywhere, whether it hampers or whether it helps. Another believes the dramatic method is the key to all lasting impression. Still another is now looming on the education horizon,

and if he be allowed free scope the naughty will be turned out of the school and the good allowed to work out their own education salvation."

#### AN EXPERIMENT IN A RURAL SCHOOL.

The following example of what an original teacher can accomplish in spite of difficulties was given by Mr. Allsebrook in a paper on rural schools and agricultural education read at the North of England Conference:—In *The Morning Post* of April 9th and 23rd, 1909, there was a most interesting account of the work done by a village schoolmaster and his wife, Mr. and Mrs. MacDonald, at Ednam, in Roxburghshire. With the consent of the local authority these two proceeded to teach, in addition to the usual subjects, cookery and dairy work to boys and girls, laundry work to the girls, and wood-carving to the boys, who also had some lessons in joinery from the village joiner at his shop. The cost to the School Board was nil, for the special grants came to £83, and Mrs. MacDonald's salary to £65. Moreover, a cow, and then a separator, were given to the school, and the butter made was so good that it soon fetched 4d. a pound more than the local product, and the farmers began to send cream for the children to churn and make up. More astonishing still, Mrs. MacDonald took six of her pupils to the Edinburgh and Midlothian Dairy Show, and they carried off the first four places in the open butter-making competition, to the amazement of everyone. The cooking is no less interesting. The material was found by Mrs. MacDonald, and the cooked dishes used or disposed of by her. A careful account was kept, and shows that no loss accrued. When the article was written she was teaching the children how to cook forty different dinners suitable for a working-class home, each dinner for three or four persons costing from 8d. to 10d. And, be it noted, all this and much more was done without any detrimental effect on the ordinary curriculum. Mr. MacDonald was determined that his methods should be open to no objection on that score, so he added half an hour to the time-table, and the departmental inspections showed results well above the ordinary standard.

#### MUSIC FOR BOYS.

At the Headmasters' Conference, Dr. Lyttelton, headmaster of Eton, in proposing a resolution, gave an interesting address on the value of music in schools. He said it is an extraordinary delusion that the faculty of music as found in English people is weaker than it is among certain foreigners. The truth is that it is not only a remarkably vigorous faculty, but that recent events and evidence ought to have taught that there is a very special duty incumbent upon teachers to see that none of their pupils are neglected in this respect. Of late years there has been an interesting development of training in class singing and reading at sight and training of the ear among elementary schools. If class singing is properly taught to children it improves nearly every faculty which nature has given them. It certainly improves their health—their lungs, the shape of their

structure and their breathing. But, more important still, it is a direct stimulus of the right kind to the brain. There is an intellectual advance noticeable so soon as the children learn to interpret the symbols of music on a blackboard. Mr. Edward Speyer, a German by birth, who is an admirably trained musician and a competent judge, has said that nowhere in Germany can such an intelligent audience for classical music be got as in London. The classes, which preparatory-school masters can perfectly well organise, are not supposed to consist of children some of whom can progress and others not. There is no possible doubt that the number who are so hopelessly unendowed by nature as to make it a waste of time to train them at all is estimated by the best judges at about 2 per cent. In others who seem to be hopeless the most astonishing progress has been observed after two years' work. In an entrance or scholarship examination it is quite possible without any derangement of the system to put one or two questions in a general paper which will show at once whether a child has been taught elementary sight reading. It may be taken as an absolutely certain test that the child who is able to answer that question is not backward in any subject. At Eton the music-master examines all the boys when they come to the college to see if they are fit for the school choir. Such an examination ought always to include the elements of sight reading. Among the many benefits which class teaching in this subject brings is that it is the best way of inculcating corporate action effectively. A child singing with others in parts learns co-operation and harmonious action and to express himself with restraint. Those who refuse to believe that there is anything in these ideas after the evidence of the last twenty-five years are men who have not that hope in education which is the one essential condition of all progress.

#### ENGLISH LITERATURE TEACHING IN SCHOOLS.

At the annual meeting of the English Association Mr. Percy Simpson read a paper on the value of the plain text in the literature lesson. He said during the course of his remarks that of all the difficulties which combine to check effective progress with the average boy, the first and most formidable is the lack of a proper vocabulary. A powerful factor which contributes to this state of things is the number of boys' magazines written down to the level of boy readers, and often full of slang. The boy reads them without the slightest call upon his intelligence and judgment, and the phraseology is that to which he is accustomed out of school hours. When he quits these shallows he is soon hopelessly out of his depth. Only the dictionary systematically used will cure cases of this kind. But boys will not submit to the terrible burden of dictionary and notes, and it is better that they should concentrate on the actual text and keep in touch with the author, and obtain from the teacher any elucidation they need. Careful use of the dictionary in the early stages is all important. Many of the annotated school editions on the market are excellent, but their main use is for the teacher.



Mr. A. J. Spilsbury, in a paper on prose teaching in schools, said we cannot compel enthusiasm for fine literature, or for the beauty of the form of words. It is our function as teachers of English literature to arouse sympathy and admiration. It is our business, too, to suggest to pupils a certain humility of attitude to a literary masterpiece. All who have tried to teach English literature have been appalled at the vast field for choice, and here we are brought up against the first great difficulty of the subject—the inability of youth, however, gifted, to appreciate fully the literary presentation of life experience. Hence the teacher is always under the necessity of anticipating experience for the taught, and this may account for the apparent apathy of a class when confronted with some of the finest passages of poetry or prose.

The teaching of poetry, though in its highest branches supremely difficult and needing a teacher with some spark of the divine fire in his composition, is yet, in a sense, more straightforward, more plain-sailing than the handling of a prose author. There is more to say to a class by way of preface. Poetry is unfamiliar and is therefore apt to arouse more interest in the class; its form and metre need more unravelling, it contains more archaic and unusual words, more inverted and involved sentences, and needs, therefore, more explanation. And the modern teacher loves exposition beyond all else. Poetry lends itself better to the delivery of a model lesson before an inspector.

Towards the end of his address, he said teachers are looking for an edition of standard books with a short biographical survey of the author and his times, and with very brief explanatory notes, containing also a questionnaire suggesting parallels from other literature for more advanced study or for composition exercises. It is advisable not merely to have read some one or two of the great poems or prose works with scholarly care, but to give every English-speaking boy and girl a glimpse into each room of that treasure-house of literature which is our common heritage. When all the facts in a writer's work and all its literary beauties have faded from our minds, there yet remains a more or less clear impression of his personality. It is the man behind the book that matters. Editions may be more or less perfect; syllabus and curricula may be more and more scientifically elaborated; but all these may be as sounding brass and tinkling cymbals if we have not the teacher of humour, of enthusiasm, and of dramatic power behind the text-book.

#### PUBLIC LIBRARIES AND THE TEACHING OF HISTORY.

Among other subjects of interest introduced at the annual meeting of the Historical Association, the question of how public libraries may assist the work of teachers of history was introduced by Miss C. A. J. Skeel. She laid down three main essentials in a public library. Teachers wish to find in the lending department in every large town a good provision of serious historical works, and also books on allied subjects, such as literature and architecture. They desire works of reference and expensive editions of

original sources of history, and they look for ample material for the study of local history. Students are, Miss Skeel said, unanimously in favour of the open-access system, and would welcome an extension of the period for which books other than works of fiction may be borrowed. London students would also welcome some satisfactory system of inter-library loans. Until that is reached it would be a help if every library in the metropolitan area possessed a printed copy of all the catalogues issued by all the London libraries.

#### THE SCIENCE-MASTER'S TASK.

In his presidential address, delivered at the annual meeting of the Association of Science-masters in Public Schools, Sir Archibald Geikie, K.C.B., P.R.S., gave an excellent description of the work of a science-master. He said:—

"In all the educational world I can think of no task more delightful to undertake than that of the science-master. At the same time there are few which demand so wide a range of qualifications. To reach the highest success in his calling the science-master must, of course, be thoroughly versed in his subject, alike theoretically and practically. He should, if possible, be a man who has himself done some original research, or at least is intimately familiar with methods of experimentation and investigation, and able to guide his pupils along the lines of independent research.

"I am strongly of opinion that his efficiency will be much augmented if he has had a good literary as well as a scientific training. When he enters on his teaching career he will soon find the great advantage of a cultivated style, both in discoursing and in writing. Unfortunately some able men of science who have neglected the literary side of their education cannot arrange their thoughts in proper sequence or express them with clearness and terseness. I would urge the science-master to keep his hold on literature, ancient as well as modern. Many a time when weary with his labours, and discouraged, perhaps, by the difficulties wherewith they are beset, he will find in that delightful field ample consolation and refreshment.

"But, above all, the science-master must be thoroughly in love with his subject and possess the power of infusing some of his affection for it into his pupils. His evident and genial enthusiasm should be infectious and become an inspiration that appeals to his boys in everything he does, whether as he lectures and demonstrates to them in the class-room or as he shows them how to work in the laboratory. There are probably few other callings in the educational domain where the personal touch, the stimulating influence that springs from earnest devotion to a subject, has so many opportunities of manifesting itself and tells more promptly and powerfully on the pupils. The teacher who is gifted with such an inspiring power may do more in the way of developing a love of science with the meagre outfit of a parish school than a man without this influence can do with all the resources of a modern laboratory."

## THE HEADMASTERS' ASSOCIATION.

At the annual meeting of the Association of Headmasters, presided over by the Rev. Canon Swallow, the new president, the following resolutions, among others, were adopted:—

(1) That this association welcomes the establishment of the Teachers' Registration Council as an important step towards the creation of a teaching profession having control of its own membership.

(2) That this association acknowledges with satisfaction the sympathetic reception given by the President of the Board of Education and the Chancellor of the Exchequer to the claim for the establishment of a superannuation fund for teachers in secondary schools, and that this association is of opinion that the State should contribute to such a fund on a higher scale than that at present proposed.

(3) That the Board of Education be asked to include in the proposed Superannuation Bill a clause giving a general power to local education authorities and governing bodies to establish schemes for providing supplementary pensions and retiring allowances.

(4) That (i) this association welcomes the report of the Consultative Committee on Examinations in Secondary Schools as a complete and incontrovertible presentment of the injury done to secondary education by the present multiplicity of external examinations. (ii) The association cannot, however, approve of the establishment of a new composite Examination Council. (iii) The association requests the Board of Education, in co-operation with the Teachers' Registration Council, to confer with the universities and professional bodies with a view to the institution of common entrance examinations. (iv) The association approves of the establishment of a secondary-school certificate to be awarded to pupils who have (a) attended an inspected secondary school or schools for at least three years after the age of twelve; (b) passed an examination conducted with the concurrence of the Board of Education; and (c) remained in school until the age of sixteen, provided that the universities and professional bodies accept such certificate in lieu of their own entrance examinations. (v) The association cannot approve of the establishment of the proposed secondary-school testamur, regarding as inadvisable the official award of such certificate to pupils below the age of sixteen; it is further of opinion that the methods proposed for the award of the certificate are absolutely unworkable. (vi) In the opinion of the association, acting-teachers should be adequately represented on examining bodies; and that examiners should have had sufficient experience of actual teaching in schools.

(5) That this association welcomes the proposal of the Board of Education to encourage, in addition to the present system of training, the institution of a system based from the beginning upon actual school work, and urges the Board to proceed without delay with the necessary steps for making this proposal effective.

(6) That this association thanks the Vice-Chancellor

of the University of Oxford for his courtesy in submitting for its consideration the proposed new scheme of examination for responsions; but, while welcoming this scheme and giving thereto a general approval, it desires further opportunity of considering the details thereof in committee. The association, however, regrets that Greek is still required from all candidates for the examination.

(7) That it is a matter of urgent necessity to establish adequate salary scales in secondary schools, due regard being paid to the cost of living in different districts.

(8) That this association regrets that the efficiency of secondary education is seriously impaired by the early age at which pupils leave school; it appeals to parents to give their sons the full benefit of the later and most useful years of school life, and to employers to encourage a longer stay in school by giving preference among candidates for appointments to those who can produce evidence of regular attendance and satisfactory progress at a recognised efficient secondary school at least up to the age of sixteen.

(9) That this association regrets that the Civil Service Commissioners encourage premature withdrawal from secondary schools by appointing boy clerks at the age of fifteen, especially as the conditions of their appointments are so unsatisfactory.

(10) That this association regrets the lack of any working arrangement between different local education authorities in England to continue the scholarships (or free places) of any pupils whose parents move from one administrative area to another, and hopes that such arrangement may be effected as may be extended later on to the whole of the United Kingdom.

## CAMBRIDGE UNIVERSITY LOCAL EXAMINATIONS.

SET SUBJECTS FOR JULY AND DECEMBER, 1914.

**RELIGIOUS KNOWLEDGE:—Preliminary.**—(a) St. Luke i.—xiv.; or (for Jewish students only) Genesis xii.—xxiv., xxvii.—xxxv., xxxvii., xxxix.—end; (b) 1 Kings, ix.—end; (c) the Church Catechism.

**Juniors.**—(a) St. Luke, or (for Jewish students only) Genesis xii.—xxiv., xxvii.—xxxv., xxxvii., xxxix.—end, Exodus i.—xx., xxiv., xxxi.—xxxiv., xl.; (b) 1 Kings; (c) the Acts of the Apostles xiii.—end; (d) the Church Catechism, and Morning and Evening Prayer in the Book of Common Prayer.

**Seniors.**—(a) St. Luke, or (for Jewish students only) Genesis xii.—xxiv., xxvii.—xxxv., xxxvii., xxxix.—end, Exodus i.—xx., xxiv., xxxi.—xxxiv., xl.; (b) the Acts of the Apostles, xiii.—end; (c) 1 Kings; (d) Thessalonians I. and II.; (e) the Litany and the Offices for Communion, Baptism, and Confirmation in the Book of Common Prayer; (f) the Church Catechism, and Morning and Evening Prayer in the Book of Common Prayer.

**ENGLISH LANGUAGE AND LITERATURE:—Preliminary.**—(c) Scott, "Lord of the Isles," cantos ii. and vi.; (d) Defoe, "Robinson Crusoe," part i. (from Robinson

Crusoe's first landing on the island to his departure from it).

**Juniors.**—(b) Shakespeare, "Tempest"; (c) Scott, "Lord of the Isles"; (d) a paper of questions of a general, not a detailed, character on Scott, "Ivanhoe," and "Historical Ballads" (Pitt Press), pp. 95-end.

**Seniors.**—(b) Shakespeare, "Tempest"; (c) Milton, "Paradise Lost," Books I. and II., 1-628; (d) a paper of questions of a general, not a detailed, character on Shakespeare, "A Midsummer Night's Dream," Byron, "Childe Harold," canto iii., Scott, "Kenilworth."

**HISTORY, GEOGRAPHY, &c.** :—*Preliminary.*—History of England. The paper will consist of three Sections on the periods (a) 1066 to 1485, (b) 1485 to 1688, (c) 1688 to 1815 respectively. Candidates may if they wish select questions from all three of the Sections, or may confine themselves to two or one of them.

**Geography.** The British Isles; and general Geography.

**Juniors.**—(a) History of England. The paper will consist of three Sections on the periods (a) 1066 to 1485, (b) 1485 to 1688, (c) 1688 to 1832 respectively. Candidates may if they wish select questions from all three of the Sections, or may confine themselves to two or one of them. (b) Outlines of the History of the British Empire from A.D. 1492 to A.D. 1784. (c) Outlines of Roman History from B.C. 133 to B.C. 44.

(d) Geography. Outlines of Physical Geography, and the British Isles with one of the following regions: Europe, Asia, America north of Mexico.

**Seniors.**—(a) History of England. The paper will consist of three Sections on the periods (a) 55 B.C. to 1485 A.D., (b) 1485 to 1714, (c) 1714 to 1867 respectively. Candidates may if they wish select questions from all three of the Sections, or may confine themselves to two or one of them. (b) History of the British Empire from A.D. 1492 to A.D. 1784. (c) Roman History from B.C. 133 to B.C. 44.

(d) Geography. The Principles of Physical Geography and one of the following regions: Europe (including the British Isles), Asia, North America (including the West Indies), Australasia.

**LATIN** :—*Preliminary.*—Nepos, "Lives of Lysander, Alcibiades, Thrasylbulus, Conon."

**Juniors.**—(a) Caesar, "De Bello Gallico," VI., 1-20; (b) Caesar, "De Bello Gallico," VI., 21-44; (c) Virgil, "Aeneid," II., 1-401; (d) Virgil, "Aeneid," II., 402-804. Any two of these four to be taken.

**Seniors.**—Livy, V., 1-40; or Cicero, "In Catilinam," I.-IV.; Virgil, "Aeneid," II.; or Horace, "Odes," Books II. and IV.

**GREEK** :—**Juniors.**—(a) Xenophon, "Anabasis," I., 1-5; (b) Xenophon, "Anabasis," I., 6-10; (c) "Scenes from the Ajax" (Clarendon Press), 1-419; (d) "Scenes from the Ajax" (Clarendon Press), 348-785. Any two of these four to be taken.

**Seniors.**—Thucydides, IV., 1-41, or Demosthenes, "Philippics," I., II.; Homer, "Iliad," XXIV., or Sophocles, "Ajax."

**FRENCH** :—**Juniors.**—Erckmann-Chatrian, "Le Blocus," chapters i.-xiii.

**GERMAN** :—**Juniors.**—Andersen, "Eight Stories" (Pitt Press), omitting "Ib und Christinchen."

## HISTORY AND CURRENT EVENTS.

OUR definition of "superstition" is "a belief held by someone else in which we do not share," and therefore we imply no insult if we ask: Are any of our readers superstitious about the figure 13. The year has had a month on trial. Is it satisfactory? What of previous years ending with the fatal figure? Napoleon may have reason to think the number unlucky, but the rest of Europe who overthrew him in the "battles of the nations" in 1813 did not so regard it. The "Grand Monarque" may have thought 1713 an unlucky year when he was ratifying the Treaties of Utrecht, but Great Britain might regard it as a happy omen for her life then lately begun. In 1613 we had just lost Cecil and married Elizabeth, but it was in 1612 that these events had happened, inaugurating to a certain extent the Thirty Years' War, and the Puritan Revolution which the Continental struggle allowed to work out and lay the foundation of our present constitution. Let the reader go back through the centuries and say if "13" has been lucky or unlucky for him or his forbears.

It is possible in Europe to make conventional divisions of history, and to speak of ancient, mediæval, and modern times, though even here it would puzzle even the most ignorant to justify to another person the point at which he makes the division. But in "the unchanging East" is it possible to make even these distinctions? We speak of Assyrian, Babylonian, Persian, and Greek periods, but to the ordinary dweller in the "Near East" these tides of invasion come and go, leaving him and his fields, wasted it may be for a time, but still waging the contest with nature which is necessary even in lands "flowing with milk and honey" to win his daily bread. Much more is it so with that land for which the Hebrew prophet of old had to devise a special punishment when he threatened the other nations with rainlessness. "Egypt is the Nile" was said thousands of years ago, and the history of the struggle to regulate and distribute its waters so as to maintain and increase Egypt is one continuous story from the age of the Pyramids to the completion the other day by British engineers of the Assuan Dam.

LAST autumn we were watching with the greatest interest the election of the electors of the President of the United States of America. Roosevelt, Taft, and Woodrow Wilson were household words, and since the election they have not been forgotten. What Roosevelt will do as the leader of a new party, how Taft will conduct the short period of office which remains to him, how far Wilson will carry out the programme of the Democratic party, are still subjects discussed in our newspapers and other periodicals. But the other day there was an election of a new President for a country which may also be described as United States, which attracted no notice, and was simply reported in small type in a short paragraph. Why is the election of a Swiss President so much less "important" in the eyes of Europe than that of an "American" President? Partly because of the different constitutions of these two "republics"—the

Swiss President has less power than the American—partly because of the difference in the mere size of the country; but mainly, perhaps, because the American republic has a foreign policy, while Switzerland is "neutralised" under the public law of Europe.

WHEN, having read in the papers the territorial demands of the anti-Turkish allies, we turned to the modern map of Turkey and drew in imagination the lines of the proposed boundary, we were instantly reminded of another map in our possession, and turned to our historical atlas. Though the possessions of Constantinople in the first half of the fifteenth century were not exactly the same as those which the allies propose to leave her now, the resemblance was sufficiently striking, and we thought that once again the crescent, in those distant days the standard of Christian Constantinople as in these days that of the Moslem city, was scarcely the most appropriate symbol which they could have chosen. Then it was the Moslem who had conquered all the Christian empire except a few fringes on the coast; now it is the Christians from the north, as in the great days of Bulgar supremacy in the early Middle Ages, who have left to Constantinople but a fragment of her European territory. Will history repeat itself, and in the course of the next generation will a ruler of Stamboul die bravely but uselessly defending the walls of the Tsarigrad?

## ITEMS OF INTEREST.

### GENERAL.

LORD HALDANE'S recent remarks at Manchester as to the intention of the Government to take in hand the organisation of our educational system give particular interest to some important developments which have lately taken place in New South Wales. The first of these is the institution of a system of secondary-school intermediate and leaving certificates similar to those of Scotland. In the granting of these certificates the University of Sydney is associated with the Department of Public Instruction. Such a co-operative body has a decided advantage over a board of examiners constituted of officials of the University or the Department alone. Another important event is the passing of "The University (Amendment) Act, 1912." By this Act a large number of exhibitions exempting the holders from the payment of fees at the University has been founded. One exhibition is to be given for every five hundred persons in the State between seventeen and twenty years of age. On this basis there will be about eight hundred students for whom the State will be paying at the University.

THE Act does not make the University free to all, but about half the students will have won the exhibitions exempting them from the payment of fees, so there will be ample opportunity for the poor man's son, if he has the brains and the industry. Also, for cases where maintenance at the high school or the University is required in addition, State bursaries have been established. The Act, a copy of which has reached us, seems to go far in enabling the University of Sydney

to do its duty to the people of the State. It is refreshing to find the abler men of the Labour Party now in power in New South Wales fully alive to the need for providing the best possible education, and enabling the most capable boys and girls in the schools to prepare themselves for the service they are best fitted to render to their country. What Lord Haldane said at Bristol in October and at Manchester a few days ago expresses what the Minister of Education and his colleagues in New South Wales have been saying since they came into office, and have now put in force.

At a special general meeting of the Royal Geographical Society held on January 15th, a resolution was submitted by the council, "That the society approves of the election of women as fellows." A decisive expression of opinion in favour of the proposed change was obtained a short time ago as the result of a postcard referendum, but the final decision rested with the special meeting on January 15th. After discussion, the resolution was adopted by 130 votes to 51. In future, therefore, women will be eligible for membership of the Royal Geographical Society on the same terms as men.

THE Education Society of the Teachers' Guild will discuss the direct method of teaching Latin on February 10th, at 7.30 p.m., and two exponents of the method, Mr. W. L. Payne and Mr. C. L. Mainwaring, of the Whitgift School, Croydon, will take part in the discussion. Mr. Payne will give a new lesson to a class of boys who will have been learning Latin on this method for fifteen weeks. This class will be followed by an exposition of "the principles of the direct method as applied to Latin." Visitors will be admitted at a charge of sixpence, and their names should be sent before February 8th to the honorary secretary, at 74, Gower Street, London, where the lecture will be given.

THE next International Congress of Historical Studies is to be held in London from April 3rd to April 9th next. When it was decided that the 1913 congress should be in London, the British Academy, in co-operation with universities and other institutions interested in historical science, agreed to undertake the organisation of the congress. Accordingly a committee, consisting of representatives of societies, universities, and institutions, is in charge of the arrangements. The King has consented to be patron of the congress, and Mr. James Bryce is president. Prof. I. Gollancz, secretary of the British Academy, is secretary of the congress, and the Rev. Prof. Whitney secretary for papers. Among the subjects to be discussed are Oriental history, Greek and Roman history, religious history, legal history, and archæology. Everyone wishing to become a member of the congress is requested to communicate with the secretary of the congress (British Academy, Burlington House, W.).

A MEETING of the London branch of the Association of Science Teachers will be held on February 11th,

at 5.30 p.m., at the Burlington School, Old Burlington Street, London, W., when a paper will be read by Miss Attwater.

MR. BALFOUR was elected president of the English Association at its annual meeting in January. The report of the executive committee, which was adopted, stated that the association numbers 1,733 full members and 501 associates—an increase of 98 full members and a decrease of 24 associates. The central membership is now 792, a net gain of 60 members; and there are 11 new life members. The ten local branches in England include 612 full members and 371 associates, the Scottish branch 189 full members and 130 associates, and the branch in South India 120 full members. A branch has recently been established in Toronto.

WHEN Mr. W. H. S. Jones was writing his pamphlet, "Classics and the Direct Method" (since then reprinted as the introduction to "Perse Latin Plays"), he thought it would be useful to have the opinions of those who have received a classical education on "direct" lines. There are not many who have been so educated from the first, and two of the most promising were chosen to answer a *questionnaire*. The answers of the second student aroused much interest and attention, but as the questions were set with a view to discover any limitations to the rigid application of the direct method to Latin, they were critical rather than laudatory. Accordingly Mr. Jones asked this pupil (who is a fine scholar, although only sixteen years of age) to write a short account of his own experiences as a beginner. His essay is printed in our Correspondence columns (p. 78). It should be noticed that only those who have been trained on direct lines from the beginning are good judges of the value of the reformed methods of teaching classics. All who begin on the old lines soon form habits of thought which render their testimony of little value.

ON and after February 1st, *Child-Study*, the journal of the Child-Study Society, will be published eight times a year—monthly, except in January, July, August, and September, instead of quarterly. The price will be reduced from sixpence to threepence net. The change is made in order to publish more of the papers on child-study read before the branches of the society, and to keep subscribers in closer touch with current events connected with child-study.

THE meetings of the Headmasters' Conference were held too late for reference to be made to them in our last issue. For the convenience of readers we record the resolutions which were adopted: (1) That this conference would view with favour a system by which all student teachers would pass through a course of practical training in approved schools under selected members of the ordinary staff, and in close connection with the training department of a university. (2) A resolution deploring the multiplicity of entrance examinations, and suggesting as a practical solution of the difficulty that a uniform school proficiency examination be accepted *pro tanto* as a qualification for entrance to any university and to the

professions. (3) That this conference desires to direct attention to the movement for the provision of regular musical teaching, especially in sight-reading, for younger boys. At the request of the Vice-Chancellor of Oxford, the proposals for the revision of responsions were also brought before the conference, and after a discussion on the proposal that the present examination in responsions should be abolished and an entrance examination nearly identical with that for the school-leaving certificate be substituted, the conference agreed that no resolution should be passed, but that the chairman, Dr. Gow, should write to the Vice-Chancellor conveying the opinion of the meeting. It was agreed that this communication should convey approval of the principle of the proposed examination, provided that only three out of the four subjects named should be required for matriculation, and that the conference should not be understood to be pledged to the support of compulsory Greek.

SIR RYLAND ADKINS, the president for 1913 of the Private Schools Association, delivered his presidential address at the annual meeting of the association, held at the University of London on January 7. He said he looks forward to the time when there will not only be a primary but a secondary school within the reach of every boy and girl in this country, maintained from public funds, under public control, and forming part of a national system. There is no difficulty in combining with that confession of faith a real and intense interest in what is being done in England by the private schools and by teachers of various kinds who are outside such a system. "It appears to me," he continued, "to be absolutely necessary that there should be side by side with national organised methods of education other methods which in a certain sense may be described as private enterprise. As between State-aided and private schools, it is most desirable that so far as possible it should be open for any boy or girl to change from one to the other without undue hindrance. The strength of the national system of education lies in its certainty of maintaining a good standard. Private enterprise will always be placed at a disadvantage when compared with State enterprise in these matters. On the other hand, private-school teachers have great advantages in respect to initiative, flexibility, and personal touch. The individual spirit can never be crushed by organisation. The present and future of teachers in private schools does not depend upon Acts of Parliament, regulations of the Board of Education, or diplomacy between their representatives and those in authority, but upon the permanent desire of parents for personal training for those who are nearest and dearest to them."

THE annual general meetings of the Association of Assistant-masters were held at St. Paul's School, London, on January 1st to 3rd. Mr. J. C. Isard, of the Leys School, Cambridge, the chairman for 1913, presided. On the first two days the council met, and, among other important business, decided to establish an orphans' scholarship fund, for the children of deceased members of the association, to be

administered as part of the existing benevolent fund, to mark the twenty-first year of the association's existence. At the general meeting of members, on January 3rd, the statement of accounts, which showed that the finances of the association are in an exceedingly satisfactory condition, was presented, and, in moving the adoption of the annual report for 1912, the retiring chairman, Mr. S. E. Winbolt, of Christ's Hospital, gave an address, reviewing the chief activities of the association during the past year. Resolutions were passed on the subject of the Teachers' Register, superannuation, examinations, the right of appeal for assistant-masters, and the orphans' scholarship fund. A discussion followed on the proposed "School Record," a report on which forms part of the annual report of the association for 1912. The meetings were well attended, and much satisfaction was expressed at the good work done by the association during the past twelve months.

THE following resolutions were adopted at the annual meeting of the Association of Assistant-masters: (1) on the subject of the Teachers' Register: That this association is of opinion that for present teachers the regulations for admission to the register should provide: (a) that two years' satisfactory experience in recognised secondary schools, or in such schools as may be approved by the Registration Council, be accepted as a qualification; (b) that masters in recognised secondary schools, or in such schools as may be approved by the Registration Council, who have not completed two years' service when the register is established, be eligible for registration when three years have been completed; (c) that all teachers who can show evidence of ten years' satisfactory service in secondary schools be admitted to the register. (2) As regards superannuation: (a) That this association considers that no system of pensions for secondary-school teachers will be satisfactory which does not provide (a) that the proportion of the contributions paid by the State be at least as high as in the case of elementary-school teachers; (b) that the pension be of £100 per annum at least for men at sixty years of age, after thirty-five years of recorded service. (b) That the contributories to the scheme should be the State and the teachers only. (3) So far as examinations are concerned: That this association approves of the recommendations of the consultative committee on examinations in secondary schools; expresses its gratification that the committee finds reform possible without adding to the clerical duties of schoolmasters; and recommends the executive committee to advocate as widely as possible the adoption of the recommendations. (4) In the case of right of appeal: That the executive committee be requested to circularise all boards of governors and education committees in the country, to the effect that before the dismissal of an assistant-master, or the stoppage of his annual increment of salary, be determined upon, he shall have the right to be heard by the governors of the school.

At the annual meeting of the Association of Assistant-mistresses, the various reports presented

dealt with matters of interest in three directions: the formation of the Secondary, Technical, and University Teachers' Insurance Society, the advance made with regard to pensions for teachers, and the establishment of a Teachers' Registration Council. The following resolutions in connection with the Teachers' Register were adopted:—(1) That a university degree or its equivalent should be required of all those engaged in teaching ordinary literary or scientific subjects. (2) That for all those engaged in teaching special subjects, such as gymnastics, needlework, cookery, art, music, &c., the appropriate qualifications most nearly corresponding to a degree should be required. (3) That teachers engaged in kindergarten and other forms of preparatory teaching should also be allowed special qualifications, with less stringent academic requirements. After considerable discussion, the following resolutions also were passed:—(4) That special conditions should be made for existing teachers who apply for registration within one year after the date of application is fixed: (a) five years' experience in schools recognised as "efficient" by the Board of Education, or capable of satisfying the Registration Council that they are efficient; or (b) training, in addition to two years' experience in schools recognised as efficient by the Board of Education, or capable of satisfying the Registration Council that they are efficient. The threatened curtailment of holidays in certain secondary schools led to the adoption of the resolution "that in the opinion of this association it is necessary for the good working of a secondary school that adequate holidays be allowed, and that this association considers that a minimum of thirteen weeks is essential." The president, Miss I. M. Drummond, of the North London Collegiate School, gave her address, and took for her subject, "The Scientific Study of Living Things as an Element in Education." This was followed by an address by Miss H. L. Powell, principal of St. Mary's College, on the school's preparation for vocation.

THE presidential address to the Teachers' Guild was this year delivered by Dr. W. H. D. Rouse. He condemned the bookishness of education to-day, and pointed out that the bookishness of the old system filled only part of the boys' time, and in their free time they did a great deal to educate themselves by outdoor sports. When a boy goes out into life, complaints are often made that he knows nothing, is too particular for his job, or that he wants something easier. He put the last aside, saying it concerned the boy's mother chiefly and his moral training out of school. In the former case there are two classes of persons who recover. First, the best public-school boy who is capable of anything but that which is dishonourable, and, secondly, the superannuated dullard who has been too strong for the school and has refused to bind himself in its bonds. Speaking of the difficulties in connection with the education of town-bred children, Dr. Rouse maintained that our hope is in the number of men and women working independently and trying to mend obvious faults. We have first and foremost a man of the greatest educa-

tive genius, Sir R. Baden-Powell, implanting once more the seeds of honour and self-respect which have become almost unknown in certain classes of society, and who is at the same time showing how easy it is for the willing spirit to learn anything. There is nothing bookish in the Boy Scouts. They train practical powers in such a way as to be a complement to the bookish theory. There are also, he continued, reforms within the school itself, such as those of Montessori, the pioneers in modern language teaching, and so forth.

THE papers communicated to the second International Moral Education Congress, held at The Hague in August last, have now been published. The volume containing them is bulky, running to more than a thousand pages. The papers fall into four divisions: those dealing generally with the different points of view from which moral education is regarded—religious, social, national, and practical; those relating to physical education as a means to character-building; those relating to the education of adolescents; and those bearing upon the training of abnormal children. On the more practical issues the volume contains an immense storehouse of suggestions, which have the advantage of coming from men and women of different nationalities and different ways of thinking. On the great question whether it is possible to give an effective moral education without a religious basis, we again have impressive, though naturally inconclusive, statements, as we had at the first congress four years ago. Still, it is a gain to have opposed opinions so temperately and lucidly set forth as they are in some of these papers.

*The Poetry Review*, which, under the editorship of Mr. Stephen Phillips, bids for new life and fame, contains the weird curtain-raiser, "The Gods of the Mountain," by Lord Dunsany, and a careful plea for the true speaking of blank verse in reference to the poetic drama. The aim of the review and of the Poetry Society is excellent, but it will take all the energies of the promoters to prevent the modern elocutionist from laying his hands on what he considers his peculiar property. We suggest that the society should have three examiners and not one, and that of these three one should be a woman—and not an elocutionist.

THE monthly lists of publishers' remainders issued by Mr. Henry J. Glaiser, 57 Wigmore Street, London, W., are well worth the attention of teachers. Each list includes excellent bargains which will certainly tempt many readers to become purchasers. Speaking from experience, we can say that many desirable acquisitions to the school library can be selected from these remainders at remarkably low prices.

#### SCOTTISH.

THE annual congress of the Educational Institute of Scotland was held this year in Perth on the opening days of the new year. From first to last the congress was a brilliant success. The speaking throughout was of the highest order, and the hospitality of the

inhabitants of the fair city was unbounded. The president, Mr. Hugh M'Callum, University Training College, Glasgow, took as the subject of his address, "The Function of the School." Much of the expressed dissatisfaction with the products of the school was, he said, due to the failure to distinguish between the terms "education" and "schooling." The home, the church, the general social and physical environments, were all agencies exercising a strong and persistent educative influence. These sometimes co-operated with the school, and strengthened the efforts of the teacher to realise its ideal, but not infrequently the influence of the home and of the general environment was directly opposed to the school efforts. It was therefore imperative that the functions of the school should be clearly defined, and the limits of its influence made clear. The primary business of the school was to develop individuality so that the pupil might be enabled to find himself; secondly, it must seek to put him in the way of earning his livelihood; and, thirdly, it should train him so that he might efficiently discharge the duties of citizenship and make a rational use of his leisure. The whole address was of a singularly interesting and stimulating character, and gave distinction to a congress that is generally regarded as one of the most successful in the long history of the institute.

THE Solicitor-General, Mr. A. M. Anderson, K.C., delivered an address upon the administration of Scottish education. In the most interesting way possible he traced the history of education in Scotland from the time of Knox onwards, and showed how, slowly but surely, through the centuries, the nation had always remained true to the ideals of the great reformer. Only, however, in present days had these ideals been fully realised. Mr. Anderson was not content with reviewing the past. He gave a glance into the future, and foretold, in the cautious phraseology of the legal expert, the extension of areas for educational purposes, the placing of education as a national charge upon the Imperial Exchequer, and the institution of an advisory council as an integral part of the Education Department. Prof. John Adams, London University, gave a thoroughly practical and helpful address on how to learn—a neglected aspect of the teacher's work. During the course of the proceedings the honorary degree of fellow of the Educational Institute was conferred upon Prof. Adams in recognition of his outstanding services to education. This honour is jealously guarded by the Educational Institute, and the roll of graduates is one of the most select in the country. Lord Haldane, Sir Henry Craik, Principal Donaldson, and the Earl of Elgin are the most notable of the twelve surviving honorary fellows.

MISS HALDANE, of Cloan, in an address on the education of girls, said that there was general agreement that the secondary education of the girl should not be too much specialised. The first aim should be the cultivation of the mind, the imagination, and the will, so that the pupil would be able to meet any of the future calls and emergencies of life. With that as a basis, broad and firmly laid, the superstructure of special or professional knowledge could easily be

raised upon it. In the education of girls, as in all kinds of education, the first requisite was the provision of teachers of the highest culture and attainments. In this connection there was much to learn both from France and Germany.

PROF. LODGE, in the course of an address on education in citizenship, said that many people believed there was no need for any direct training in the functions and duties of citizenship. Adequate school discipline, school games, and school organisations, such as cadet corps, were, it was contended, much more likely to train up good citizens than any amount of talking about civics. The speaker, while frankly recognising the value of these organisations, said that they taught the spirit rather than the subject-matter of citizenship. The civics he advocated was not that commonly taught in continuation classes—little gobbets of information drawn from various departments of learning, put together in neat little doses, patent pills for a pale and puling people. He preferred the subjects themselves to extracts from them, and the subjects clearly necessary were history and political economy.

A SPECIAL general meeting of the General Council of Glasgow University was summoned to consider the Ordinance that was being promoted by the University Court in order to bring about affiliation between the University and the Technical College. The general principle of the Ordinance was heartily approved by all parties, but exception was taken in many quarters to a provision which made it impossible for all time to come to grant university recognition to evening classes. It was felt that it was a distinct hardship that able and ambitious young men who took advantage of the well-organised and advanced courses in the evening classes of the Technical College should obtain no recognition of these studies if they later on wished to proceed to the University for purposes of graduation. Whatever their knowledge or experience, they had to start at the beginning like lads from school, and go through the scheduled programme. The special meeting, after a prolonged and exciting discussion, resolved by a large majority to petition Parliament to withhold its consent from this provision.

AYR Academy, which has recently been remodelled and extended at a cost of £20,000, was formally reopened by Mr. Alex. Ure, K.C., M.P., Lord Advocate, in the presence of a large company. In declaring the school open, the Lord Advocate said that the most ancient seats of learning were but of yesterday compared with the hoary-headed Academy of Ayr. The torch of learning was lit there about three and a half centuries before the University of Edinburgh was founded, and it was already known and distinguished when Rugby, Eton, and Harrow were unheard of. The Lord Advocate again took up his favourite rôle of champion of schools and teachers. He said that doubtless in Ayr, as elsewhere, they heard the querulous complaint that their schools and teachers were quite unfitted to teach boys how to become successful business men, and girls to become frugal and thrifty and competent

managers of domestic establishments. He did not think it was the whole part of the teacher's duty to turn out successful men of business or capable housemaids. Many factors other than the school went to the making of these, and while the school no doubt contributed in every case to success in these, as in other departments, it could not be held responsible for the failures and misfits of life.

#### IRISH.

THE Intermediate education grant for the year ending last June was paid to the managers of Intermediate schools in December on the following scale for each student that passed the examinations:

	£	s.	d.
Preparatory Grade ... ..	3	4	0
Junior Grade (Pass) ... ..	6	8	0
Junior Grade (Honours) ... ..	9	12	0
Middle Grade (Pass) ... ..	9	12	0
Middle Grade (Honours) ... ..	14	8	0
Senior Grade (Pass) ... ..	14	8	0
Senior Grade (Honours) ... ..	21	12	0

The scale is slightly higher than in the previous year, when the payment for each student passing in the Preparatory Grade was £3 1s. 4d., and in the other grades was in proportion, but very much lower than in 1904, when payment in the Preparatory Grade was £5 9s.; in the Junior Grade (Pass), £8 3s. 6d., (Honours) £12 5s. 3d.; in the Middle Grade (Pass), £16 7s., (Honours) £24 10s. 6d.; and in the Senior Grade (Pass), £24 10s. 6d., (Honours) £36 15s. 9d. These figures show the need to the schools of Mr. Birrell's proposed supplemental grant, and it will be a grant well deserved, no matter on what conditions it is given.

THE Intermediate Board has issued the time-table of the examinations to be held next June. They will commence on Tuesday, June 17th, and continue every weekday until June 24th. The distinguishing feature is the absence of the Preparatory Grade, which will lessen the number of centres and the expense of the examinations.

IN reply to the criticisms of the difficulty of the mathematical honour courses, the Board has issued a memorandum that in order to secure honours in the subject "geometry with trigonometry" in Group C for Middle and Senior Grades, a student must pass in the geometry and in the trigonometry papers separately, and obtain 35 per cent. of the marks allotted to the combined papers. This concession will scarcely satisfy the critics. A second memorandum explains that a school which intends to claim bonuses for a choir or orchestra may enter students between thirteen and nineteen years of age—i.e., students between thirteen and fourteen who are under the Junior Grade limit of age may be entered if proper notice is given.

THE Department has issued in circular form the conditions of award of certificates for teachers of drawing and art. The certificates are in three forms: (1) the secondary-school teachers' elementary drawing certificate; (2) the secondary-school teachers' advanced



drawing certificate; and (3) the art teacher's certificate. The conditions for obtaining each of these are set forth, and also the syllabuses of the special examinations in (1) geometrical drawing, (2) perspective, and (3) blackboard drawing and teaching methods, together with the regulations for the submission of finished studies for the art teacher's certificate.

THE position of Trinity College, Dublin, and of the Queen's University, Belfast, under the Home Rule Bill has been finally defined as follows by the House of Commons, by an amendment proposed by Mr. Birrell and passed unanimously. No law made by the Irish Parliament shall have effect so as to alter the constitution or divert the property of either of these two universities, unless and until the proposed alteration or diversion is approved, in the case of the University of Dublin or Trinity College, by a majority of those present and voting at a meeting convened for the purpose, of (a) the governing body of the University; (b) the junior fellows and professors voting together; (c) the Academic Council; and (d) the Senate; and in the case of the Queen's University, Belfast, by a majority of those present and voting, at a meeting convened for the purpose, of (a) the Senate; (b) the Academic Council; and (c) the Convocation of the University. It is provided that this shall not apply to the taking of property for the purpose of roads, railways, lighting, water, or drainage works, or other works of public utility, upon payment of compensation, and further that there shall be paid annually out of the moneys provided by the Irish Parliament to the Queen's University, Belfast, a sum of £18,000 for the general purposes of the University, and that sum, if and so far as not paid, may be deducted on order of the Joint Exchequer Board from the transferred sum and paid to the University.

#### WELSH.

THE President of the Board of Agriculture has notified the registrar of the University College of South Wales, Cardiff, that at present he cannot accede to the application of the college to be represented on the Agricultural Council for Wales. Such representation is limited to Welsh county councils, the agricultural departments of the university colleges, and the few representatives nominated by the Board. The Cardiff College Council resolved that the registrar be requested to communicate with the Board of Agriculture, inquiring whether it would be possible to amend the constitution of the Agricultural Council for Wales, so that the college might be given representation thereon. But there would seem to be no difficulty in the matter of representation if the necessary funds were forthcoming from local sources to provide an agricultural department in the college, which would be able to claim recognition and the support of the grants from the Board of Agriculture.

THE £100 prize for the best drama dealing with Welsh national life offered by Lord Howard de Walden has been awarded to Mr. J. O. Francis, assistant-master at the Holborn Estate Grammar

School, London. Mr. Francis is a native of Wales, and was educated in Wales, at the Merthyr County School, and afterwards at the University College of Wales, Aberystwyth, from which college he graduated in the University of Wales, with first class honours in English. There is an active College Dramatic Society, and Mr. Francis has distinguished himself at Aberystwyth already by the production of short plays, entitled "Davy Jones" and "Paying the Rent," both dealing with Welsh life. His prize play, "Change," deals with the religious and industrial life of South Wales; it is based upon incidents in the Welsh strike riots of two years ago, and illustrates the effects of the conflict of Socialistic ideas on the older religious beliefs. It affords an instance of the way in which modern college training is being turned to immediate account on social problems.

THE proposed visit of the Barry Romilly Boys' Choir to the Eisteddfod to be held next July at Pittsburg, in the United States, has been again considered by the local education committee, when objections were urged that, owing to the summer heat, serious illness and perhaps deaths might result, a view which the medical officer endorsed. The choir accordingly has withdrawn its application, as the visit could not be undertaken without the support of a large majority of the committee.

THE executive committee of the National Welsh Eisteddfod for 1914, meeting at Bangor, North Wales, has decided to invite his Royal Highness the Prince of Wales to attend the festival. Steps are being taken to induce the musical committee to require the whole or part of an oratorio to be prepared for the choral competitions, instead of setting specified pieces as test. The adjudicators would, on this arrangement, select the actual portions of the work to be sung in the competition, and announce them on the day of the test.

IN May, 1912, a conference between the public authorities of South Wales and Monmouthshire came to the conclusion that it was desirable for them to combine for the purpose of educating the blind and the deaf, and it was recommended that to meet the present requirements the Swansea institutions be taken for a term not exceeding five years. The reply of the trustees was an offer of a lease for fifty years. Another conference, held at Swansea on December 17th, to consider the position, passed the following resolution: "That in the opinion of this conference the buildings of the two Swansea institutions are such that the authorities would not be justified in leasing them for any period longer than five years, and that unless the proposals of the conference be accepted by the trustees on or before January 31st, 1913, the various authorities will be recommended to make other arrangements for the accommodation of the blind and deaf children in their respective districts."

At the annual prize day of the old Foundation of the Friars' School, Bangor, North Wales, the headmaster pointed out that the prizes this year were

almost a negligible quantity. Though the school this year had received a larger list of honours certificates under the Central Welsh Board than any school in Wales, it was suffering more from lack of funds than any Welsh school, and was so poor that the school this year offered no prizes for the first time since its establishment in 1557. The only prizes available were given by a private benefactor. This, of course, establishes a record, and may perhaps be in the line of progress. But it is undoubtedly hard on this special school, in the days of numerous prizes, bursaries, and scholarships in the Welsh educational system, that one of the really old, established, and highly successful schools should be the one to have to bear the brunt of the new departure.

### PRIZE BOOKS FOR GEOGRAPHY.

(1) *Pioneers in Australasia*. By Sir Harry Johnston. 308 pp.+8 coloured illustrations. (Blackie.) 6s.

(2) *India*. By J. Finemore. With twelve coloured illustrations by Mortimer Menpes. (Homes of Many Lands Series.) 87 pp. (Black.) 1s. 6d. net.

(3) *The North-Eastern and Great Northern Railways*. 96 pp.+8 coloured illustrations+26 sketches. *The South-Eastern and Chatham and London Brighton, and South Coast Railways*. By G. E. Mitford. 88 pp.+8 coloured illustrations+27 sketches. (Peeps at Great Railways Series.) (Black.) Each 1s. 6d. net.

(4) Cambridge County Geographies. *North Lancashire*. By J. E. Marr. *Radnorshire*. By Lewis Davies. *Dumfriesshire*. By J. K. Hewison. *Renfrewshire*. By F. Mort. *Perthshire*. By P. MacNair. (Cambridge University Press.) 1s. 6d. each.

THE problem of finding suitable prize books is made annually somewhat easier by the issue of excellent descriptive works, containing in many cases good illustrations in colour. Sir Harry Johnston's book on Australasia (1) should suit children in the middle school, who already know something of that part of the world. It contains a summary of the general features of the continent, with special reference to the characteristic plants and animals and their distribution, an account of the first human inhabitants of the region, references to the Spanish, Portuguese, and Dutch explorers (fifteen pages are devoted to Tasman), a chapter on Dampier, three chapters mainly about Captain Cook, one chapter on Bligh and the *Bounty*, and a summary of the results of the works of the pioneers. As the author points out, in this book and in the others of the series, the reader meets the adventures and exciting incidents which have made the success of the novels of Marryat, Fennimore Cooper, and Stevenson, and of Robinson Crusoe, with the added advantage that they refer to real people, who were doing work of lasting importance to the modern citizen of the world.

For younger children the books of the "Homes of Many Lands" series and of the "Peeps at Great Railways" series, of which we have specimens before us, will prove attractive. We have previously pointed out the value of the work on Russia in the first series, and now we would direct attention to the merits of the book on India (2).

The life of the native is fully described, and interest is centred upon the village and the village folk, so that the child-reader may have a vivid picture of

the existence of the many millions of people to whom the sight of the white man is rare, and whose earnings may not exceed a penny or twopence a day.

The railway books (3) should reveal to the young prizewinner aspects of the "iron road" which should be of more than passing value; he will learn of the beautiful countryside, the great towns and their points of historical interest, and of the way in which railways meet the needs of man.

The "Cambridge County Geographies" (4) are well known, and several new volumes lie before us. They should serve as prizes to older children, who might reasonably be encouraged thereby to take a many-sided interest in the life and monuments of the counties in which they live.

### ROMAN POETRY.

*Oxford Book of Latin Verse, from the Earliest Fragments to the End of the Fifth Century A.D.* Chosen by H. W. Garrod. xlv+532 pp. (Clarendon Press.) 6s. net; India paper, 7s. 6d. net.

THIS is really a charming book, and it is more : it is a scholar's choice. A short introduction brings out the salient points in Roman poetry, particularly its rhetoric, and that it was meant to be spoken, not to be read by the eye. It is a little odd that Mr. Garrod should insist so much on this last (p. xxv.) without seeing that it is true of all great poetry, not of Latin only, and that modern English poetry and prose are all vitiated by the fault—a fatal fault—that they are not read aloud or meant to be read aloud. It is not only rhetoric that results from reading aloud, but clearness, point, and other elements of all good style. Mr. Garrod's own style is sometimes irritating, for he splits up his sentences into little bits, each ended by a full-stop. "The Roman for the most part did not read. He was read to (*sic*). The difference is plain enough." We cannot agree with all Mr. Garrod says. For instance, he says: "Aeneas was a brute. There is nobody who does not feel that." Well, the present reviewer does not feel that, and he feels it less the more he learns of human nature. Mr. Warde Fowler does not feel that Aeneas is a brute. There are other things in the world besides the relations of men and women. And *pius*, it is quite clear, means kind-hearted, which really touches off both the weakness and the strength of Aeneas very well. To turn to another detail: Mr. Garrod connects *facetus* with *fax*, an unlikely thing if the ground-meaning be brightness; its use and meaning are just like *concinus*. In the appendix on Saturnian verse, we are glad to see that he takes the reasonable view that this depends on accent and not on quantity. A new and very ingenious interpretation of the Arval song is given; it has only one weak point, so far as we can see, in supposing that the song was transferred from seed-time to harvest. Whether understood or not, this is very unlikely.

It is impossible fully to discuss the choice of extracts. All will be glad to have so much that is usually not found in such a book, the early and the late specimens. Without the old chants and the Saturnians, a wholly wrong idea is given of the course of Latin verse, and the other end might well have included some of the late rhyming verse, or accentual popular verses, to show how the genius of the language remained unchanged underneath the quantitative system. Many old favourites are here, many are omitted; but all that we have read is worth reading, and we have been surprised that the late poets contain so much that is good.

## RECENT SCHOOL BOOKS AND APPARATUS.

### Modern Languages.

*Lectures Phonétiques.* Morceaux choisis mis en transcription phonétique par C. Motte. 159 pp. (Paris: Didier.) 2.50 francs.—This little volume is a valuable addition to the number of phonetic readers available for the student of French pronunciation. The texts have been selected with care. They are clearly printed in the phonetic transcription on pp. 19 to 102, and then, in a smaller type, in the conventional spelling on pp. 105 to 159. Reading phonetic proof is very troublesome, and it is to the credit of the author that there are so few misprints. A number of points will interest the more advanced phonetician, especially as regards accentuation. In one of the selections the length is indicated by means of musical notes, another is supplied with curves indicating pitch. In these pieces alone is the division into breath-groups indicated; it would have been well to do this throughout the book, as it helps to prevent the learner from reading by single words, which leads to the habit of jerky utterance. We understand that the book was found very helpful at the Ramsgate holiday course last year.

*La Bruyère, Caractères.* Pages Choiesies. Préface d'Augustin Filon. xviii+240 pp. *Sainte-Beuve, Profils Anglais.* Préface d'André Turquet. xxii+320 pp. Notes de H. O'Grady. (Dent.) 1s. 6d. each.—Both volumes are good reading for the upper forms of schools, or for students at the university. They will be able to read them without the need of frequent reference to a dictionary, as Mr. O'Grady has supplied notes on the difficulties of the subject-matter, and has explained words likely to be unfamiliar. All this editorial matter is in French. The critical introductions by distinguished French scholars enhance the value of these books, which may well be added to the modern language library of a secondary school, and recommended for private reading.

### English.

*Cambridge History of English Literature.* Edited by A. W. Ward and A. R. Waller. Vol. ix. 608 pp. (Cambridge University Press.) 15s.—The ninth volume of the great Cambridge history of literature deals with the early eighteenth century. Among other subjects, it has chapters on Swift, Pope, memoir-writers, writers of burlesque, Bolingbroke, the mystics, and education. The usual full and fine bibliography is appended. The editors are very just to Atticus (Addison), and fully acknowledge the charm of Steele; Addison never charmed. Pope, the man, gets a very severe treatment at the hands of Prof. Bensley: "bad heart and bad health" may almost go along with Lady Mary's "wicked wasp of Twickenham." Defoe's "Robinson Crusoe" not only is highly praised, but a good reason is given for its longevity; but what Dr. Trent means by calling Defoe "the greatest of plebeian geniuses" we do not know. The writer on Swift notes the strange absence of the spiritual in the gloomy Dean; but was the spiritual present in any well-known writer of Addison's time? "A Serious Call" allows Miss Spurgeon to digress to Boehme and the mystics very pleasantly, but the Continental mystics do not belong to English literature, and, indeed, a great deal in this volume may be said to be on the other side of the line which separates literature from history. It was probably inevitable.

*A History of American Literature.* Edited by W. B. Cairns. 502 pp. (Oxford University Press.) 6s.—This book, admirably written, and free from the

peculiarities of language which some American writers on pedagogy affect, is an introduction to a literature which, according to some critics, does not exist. We expected eulogy and we find criticism; indeed, Prof. Cairns is rarely roused as Mr. Saintsbury often is and as Swinburne is generally. The result is that he seems, on his own showing, to have included too much, and he certainly picks out some of the worst verses ever written. The pages on Longfellow are very judicious, though the writer appears to think the Hiawatha metre was original with the poet. But the number of writers mentioned prevents justice being done to stars of the second magnitude. It is scarcely fair to dismiss Cable, Wilkins, and Allen with a line.

*The Three Golden Apples.* 30 pp. *The Paradise of Children.* 27 pp. *The Gorgon's Head.* 34 pp. *The Golden Touch.* 20 pp. All by N. Hawthorne. *The Story of Richard Double-Dick.* 32 pp. *William Tinkling.* 30 pp. *Captain Boldheart.* 30 pp. All by Charles Dickens. (Constable.) 1s. each.—A quite remarkable set of shilling books has been issued by Messrs. Constable. Of the first four named above we say nothing, except to commend the illustrations of Mr. Patten Wilson, for Hawthorne's tales are over-published. But the three Dickens reprints, illustrated by W. B. Wollen and Beatrice Pearse, are, even to most Dickensians, little known, and will be welcomed by all. It is doubtful if little children will appreciate them, but to the boy of twelve they ought to be a treasure.

### History.

*The Royal Visit to India, 1911-12.* By J. Fortescue. viii+324 pp. (Macmillan.) 10s. 6d. net.—Mr. Fortescue here gives us what looks like extracts from *The Court Gazette*, specifying at length the various persons who were honoured with meeting the King and Queen on their recent visit to India, but this is all in an appendix (A) of fifty pages, and will scarcely interest any of our readers. Nor will they be impressed with appendices B and C, unless they are connected with officers of the army, but if they will turn to the pages beyond these they will find an interesting document on pp. 323-4, and a plan of the Durbar at Delhi. And the body of the book consists of a racily-told narrative of the journey which will well repay perusal. Though an official "Narrative of the Visit to India of Their Majesties King George V. and Queen Mary and of the Coronation Durbar held at Delhi, 12th December, 1911," to quote in full the title-page, it is by no means official in its style. There is humour in it and criticism of some of the arrangements, and the result is a very readable account of what has been for many of our fellow-subjects in India the great event of their lives.

*Leading Figures in European History.* By R. P. D. Pattison. viii+471 pp. (Rivingtons.) 6s. net.—Mr. Pattison has given, for the general reader, a sketch of the careers of sixteen statesmen, from "Charlemagne" to Cavour and Bismarck, and filled up the gaps with a brief statement of the intervening periods. The result is a remarkably good outline of mediæval and modern history. We like the story better at and after the Reformation than what goes before. It would almost seem that the author's own period is the modern one, and that he has read up the earlier periods to complete his book, but we may be wrong in this impression. We notice one little slip on p. 379, where Mr. Pattison seems to date the Emperorship of Austria in 1804 instead of 1806, but there is a good index, and though the volume has no formal bibliography, there is a reference in the preface to other books likely to be useful to the readers for whom the book is intended. A good book for the school library.

*In Byways of Scottish History.* By L. A. Barbé. vii+371 pp. (Blackie.) 10s. 6d. net.—Nearly a fifth of this book consists of an inquiry into the mediæval myth which attributed to the English the possession of long tails like monkeys. The rest is a series of essays of various length, but none of them so long as this, on various events belonging to the fringe of Scottish history in the sixteenth and seventeenth centuries. The first are devoted to the personal characteristics of Mary Stuart, and her four Marys. The author thinks that Mary was not so beautiful as she is reported, and shows that popular song has misrepresented her attendants, even to their very names. Others tell of more or less romantic military incidents. Altogether, to those who know and like Scottish history fairly well, the book will afford pleasant and often instructive reading, especially the translation of mediæval Latin and French songs.

### Geography.

*The "Anysize" Map Rail.* (Philip.) 3s. 6d. net.—Four pieces of lath, each 3ft. 3 in. in length, are fastened together in pairs by means of a strong block of wood at each end. Between each two pieces of lath there is left a slot, less than half an inch in width. In each slot slide two wooden knobs fitted with picture-hanging hooks. The two long pieces are hinged together so that they may extend to 6½ ft. in length, and a wooden arrangement is used to make the whole rigid when stretched the full length. Add to this attachments for hanging the rail by a cord, or for gripping the rail on to a blackboard or easel, and you have the "Anysize" map rail, which is handy, portable, and easily fixed.

*Special Relief Maps.* (Review of Reviews Office, London.) Single maps, 2d. each; six maps for 9d., post free; fifty maps, carriage paid, 3s. 6d.—The posters issued by the railway companies, as well as the newspapers during the recent war, have begun to make us familiar with pictorial representations of the relief of a country, similar in result to that obtained by means of balloon photographs. Recent numbers of *The Review of Reviews* have contained specimens of such maps, which are now being issued in separate sheets for school use. Of the six specimens which have been sent to us, five deal with areas in relation to the Balkans, and have therefore a more or less transient interest, but the sixth shows the Panama Canal, most of the British possessions bordering, or in, the Gulf of Mexico, and in the distant perspective the United States. Like the other maps, this is well produced, and gives a vivid picture of the area chosen.

### Mathematics.

*The Teaching of Mathematics in Secondary Schools.* By A. Schultze. xxii+370 pp. (New York: The Macmillan Co.) 5s. 6d. net.—Amidst the turmoil of conflicting views regarding the aim and method of mathematical teaching, one experiences no small degree of pleasure in meeting with such an able and careful examination of the questions involved as is presented in the book before us. Although written in America, there is little in it which is not applicable on this side of the Atlantic. When the writer enumerates as the causes of inefficiency in the schools of America the overrating of spectacular effects, the undue weight given to examinations, the congestion of courses of study, the encouragement of memorising and neglect of reasoning, and the subordination of the interests of the ordinary pupils to those of the stars, one has to acknowledge that there are not many schools in this country free from these same faults.

A discussion of the value and aim of mathematical

teaching is summed up in the following words:—"Mathematics is primarily taught on account of the mental training it affords, and only secondarily on account of the knowledge of facts it imparts. The true end of mathematical teaching is power and not knowledge."

A very helpful chapter is that on the methods of teaching mathematics. The methods are classified, examples of each are given, and their advantages and disadvantages discussed. The greater part of the remainder of the book is devoted to a detailed discussion of teaching geometry. Much attention is given to the methods of attacking problems, ability to solve original exercises being regarded by the writer as the main object of geometric instruction. Some space is also assigned to typical parts of algebra and trigonometry. It is very improbable that all teachers would give their assent to many of the views expressed in the book, but it provokes thought, and that alone would justify its existence.

*The Calculus.* By E. W. Davis, assisted by W. C. Brenke. Edited by E. R. Hedrick. xxii+383+63 pp. (New York: The Macmillan Company.) 8s. 6d. net.—The object of this work is to teach the use of the calculus. No great prominence is given to the analytical aspects of the subject, the stress being laid upon the applications. Integration is introduced at an early stage, being regarded first as an inverse operation, and later as a summation. The final chapter explains the method of solving the more commonly occurring differential equations. Naturally much space is devoted to the geometry of tangents, normals, surfaces, volumes, and the elements of the theory of surfaces; but, in addition, many examples have been drawn from mechanics, hydrostatics, electricity, and heat. In spite of the avowed liking of some teachers for this commingling of subjects, we very much doubt whether it really helps to an intelligent comprehension of the theory. However, all tastes are here catered for, and teachers and students can select what they please. There is a very useful collection of tables at the end of the book. First come formulæ in algebra, trigonometry, mensuration, and the differential calculus; next equations and diagrams of standard curves and solids. These are followed by tables of integrals, and finally numerical tables to four figures are given.

### Science and Technology.

*Elements of Drawing.* By G. F. Blessing and L. A. Darling. 194 pp. (Chapman and Hall.) 6s. 6d. net.—The authors state that this book is intended "to present a course of instruction in mechanical drawing for beginners who intend to pursue a course in engineering or who desire to prepare themselves for commercial drafting." Based as it is on the courses required of all first-year students in engineering in Sibley College, Cornell University, it may be suitable for American undergraduates, but it is too highly specialised in type for the ordinary evening class student or for lads in technical schools in England, no fewer than thirty-five pages, for example, being devoted to the subject of lettering. The whole of the models selected for treatment are parts of a wood-turning lathe, and it is doubtful whether a stereotyped scheme of this kind is of real educational value, although it may be useful for reference. The chapter on the selection, care, and use of drawing instruments and materials is very good: those dealing with mechanical drawing, freehand sketching, and isometric drawing are clear and carefully written, but they are rather long and burdened by detail. In Fig. 74 a drawing is represented on the board in such a position that the drawing-pins ("thumb-tacks" in the text) would make

holes which might be extremely inconvenient if a larger drawing were required subsequently. The conventional methods of showing screw-threads given on p. 72 and again on p. 88 do not agree with English practice; with the methods shown it would be impossible to distinguish left and right-handed threads. On p. 84 it is stated that a *single* (orthographic) view is sufficient to illustrate the form and processes necessary in the manufacture of an object if it is quite simple and symmetrical! As examples, the authors mention a washer, a bolt, a shaft, a plain key, &c.; but, fortunately, on p. 118, to which the student is referred, two views are given in most cases

*The Boy Fancier.* By F. T. Barton. xx+435 pp. (Routledge.) 5s.—The author, a veterinary surgeon, is a well-known authority on the treatment of domestic pets of all kinds, and his advice may be followed confidently, not only by youthful fanciers, but also by such of their elders as cultivate similar pursuits for profit. More space is given to dogs than to any other pets, the "points" of all the common breeds being described and illustrated by pictures. Pigeons also receive a large share of attention, and almost as many pages are allotted to British cage-birds. In the latter section the author protests against the practice of capturing and confining birds from motives of wanton cruelty, but he apparently considers that the imprisonment of tits, larks, starlings, blackbirds, thrushes, nightingales, &c., is justifiable when every possible care is taken to make the birds comfortable. He points out, however, that nightingales and black-caps do not as a rule sing in confinement, and also that skylarks kept in an aviary "are apt to knock themselves about." We are not told how such unreasonable birds ought to be treated. Other sections of the book deal with guinea-pigs, rabbits, poultry, &c. It is excellently illustrated, and supplies a real need.

#### Miscellaneous.

*The Directory of Women Teachers and other Women Engaged in Secondary Education, 1913.* lvi+119+70+134 pp. (The Year Book Press.) 5s. net.—This volume deals with women teachers engaged in higher and secondary education in a manner similar to that adopted by "The Schoolmasters' Year Book" for secondary schoolmasters. The number of names in the directory is smaller than one would have expected, but this is to be explained by the fact that a charge had to be made for the insertion of each name. We heartily welcome this work of reference, which will prove invaluable to all engaged in the secondary education of girls; and we congratulate the editor upon the exhaustive character of many of its contents.

### EDUCATIONAL BOOKS PUBLISHED DURING DECEMBER, 1912.

(Compiled from information provided by the Publishers.)

#### Modern Languages.

"The Spanish Language: As Now Spoken and Written. A Complete Theoretical and Practical Grammar Designed for Every Class of Learner, with Copious Examples and Exercises." By R. D. Monteverde. 412 pp. (Blackie.) 4s. net.

"Le Petit Gars." By Paul Féval. Edited by S. Tindall. With Notes, Phrase-list, Exercises for Retranslation and Vocabulary. (Blackie's Longer French Texts.) 112 pp. (Blackie.) 8d.

"Der erste Schnee" and "Meine Etageglocke." By Freiherr von Schlicht. Edited by Alex. Blades. With

Notes. (Blackie's Little German Classics.) 40 pp. (Blackie.) 6d.

#### Classics.

"Lysiae Orationes." Edited by C. Hude. (Oxford Classical Texts.) 290 pp. (Clarendon Press.) Paper 3s., cloth 3s. 6d.

"Aristotelis Ethica Nicomachea." Edited by I. Bywater. (Oxford Classical Texts.) 264 pp. (Clarendon Press.) Oxford India paper, 5s.

"Cornelii Taciti Annalium Libri V.-XII." Edited by H. Pitman. 274 pp. (Clarendon Press.) 3s. 6d.

"The Georgics of Virgil in English Verse." By Arthur S. Way. 122 pp. (Macmillan.) 2s. 6d. net.

#### English: Grammar, Composition, Literature.

"Dramatised Scenes from 'The Pilgrim's Progress.'" By Emily A. Rudd. With music by Dr. J. C. Bridge. (Standard Plays Series.) 56 pp. (Allen.) 6d. net.

"Waterloo." Being Selections from Wellington's Dispatches, along with "A Voice from Waterloo." By Sergeant-Major Edward Cotton (late 7th Hussars). Edited by W. H. D. Rouse. (Blackie's English Texts.) 126 pp. (Blackie.) 6d.

"Pauline's First Reading Book: About Tom and Jane and their Naughty Friend." By Lady Bell. (Longmans.) 1s. 6d.

"Introduction to the Study of English Literature: Its History and its Form." By W. H. Stephens. 140 pp. (Macmillan.) 1s. 4d. net.

The Tudor Shakespeare: "Measure for Measure," Edited by E. C. Morris. 162 pp. "The Two Gentlemen of Verona." Edited by M. W. Sampson. 134 pp. (Macmillan.) Each 1s. net.

Irving: "Sketch Book." With Introduction and Notes. By T. Balston. 562 pp. (Oxford University Press.) 2s.

Irving: "Sketch Book." By T. Balston. (World's Classics.) 458 pp. (Oxford University Press.) 1s. net.

#### History.

"The Last Century in Europe." By C. E. M. Hawkesworth. viii+526 pp. (Edward Arnold.) 5s. net.

"The Baron of Brandeau: A Historical Play of the Reign of King John." By Margery Barfield and Eleanor Trotter. With an illustrated note on the costumes by T. C. Barfield. 80 pp. (Blackie.) 1s. net.

"The United Monarchy of the Hebrews." By C. C. Graveson. 228 pp. (Headley.) Cloth boards, 1s. 6d. net; cloth limp, 1s. net.

"The Period of the Patriarchs." By L. Isabel Harvey. 164 pp. (Headley.) Cloth boards, 1s. 6d. net; cloth limp, 1s. net.

"The Dawn of American History in Europe." By W. L. Nida. 394 pp. (Macmillan.) 3s. 6d. net.

#### Geography.

"An Elementary Historical Geography of the British Isles." By Mabel S. Elliott. 182 pp.+60 illustrations. (Black.) 1s. 6d.

Cambridge County Geographies: "Rutland." By G. Phillips. x+172 pp. "Linlithgowshire." By T. S. Muir. viii+144 pp. (Cambridge University Press.) 1s. 6d. each.

"Junior Geography." By G. C. Fry. 382 pp. (Clive.) 2s. 6d.

"Our Empire: a Booklet for Teachers, Parents, and Young People, containing Geographical and Historical Notes illustrating the Duties of Citizenship in the British Empire." By F. J. Gould. (Longmans.) 1s.

"A Scientific Geography." Book VIII., "South

America." By Ellis W. Heaton. 90 pp. (Ralph, Holland.) 1s. net.

"Questions and Exercises in Geography." Book IV., "North America." By R. J. Finch. 52 pp. (Ralph, Holland.) 4d. net.

#### Science and Technology.

"A First Class-book of Chemistry." By Ernest Barrett and T. Percy Nunn. 124 pp. + 44 figures in the text. (Blackie.) 1s. 6d.

"Exercises in Gas Analysis." By Dr. Hartwig Franzen. Translated from the German by Thomas Callan. 120 pp. (Blackie.) 2s. 6d. net.

"Plant Diseases." By Dr. Werner F. Bruck. Translated by J. R. Ainsworth Davis. 152 pp. (Blackie.) 2s. net.

"An Elementary Course of Magnetism and Electricity." By Chas. H. Draper. 86 pp. (Blackie.) 2s.

"Experimental Hygiene." By H. Victor Verrells. 147 pp. (Blackie.) 2s.

"A History of Chemistry, from the Earliest Times till the Present Day." By the late Dr. James Campbell Brown. 543 pp. (Churchill.) 10s. 6d. net.

"Notes on Chemical Research." By W. P. Dreaper. 68 pp. (Churchill.) 2s. 6d. net.

"Who's Who in Science, 1913 (International)." Edited by H. H. Stephenson. 571 pp. (Churchill.) 8s. net.

"A Treatise on Hydrostatics." (Revised edition.) Two vols. By G. M. Minchin. (Clarendon Press.) Vol. i., 4s. 6d.; vol. ii., 6s.

"Teachers' Manual of Biology." By Maurice A. Bigelow. 124 pp. (Macmillan.) 1s. 8d. net.

"A Laboratory Manual of Agriculture for Secondary Schools." By L. E. Call and E. G. Schafer. 360 pp. (Macmillan.) 4s. net.

#### Pedagogy.

"The School Door: a Rhyme for Teachers." By John Nickal. (Longmans.) 1s. net.

"Stuttering and Lipping." By E. W. Scripture. 268 pp. (Macmillan.) 6s. 6d. net.

"The Art of Education." By J. W. Howerth. 256 pp. (Macmillan.) 4s. 6d. net.

#### Art.

"South Kensington and its Art Training." By Frank P. Brown. With a Foreword by Walter Crane. With 25 illustrations. (Longmans.) 3s. 6d. net.

#### Miscellaneous.

"School Gardening: With a Guide to Horticulture." By A. Hosking. 338 pp. (Clive.) 3s. 6d.

"In Praise of Switzerland." (Constable Anthologies.) By Harold Spender. (Constable.) 5s. net.

"The Book of Wood Craft." (A book for Boy Scouts.) By Thompson Seton. (Constable.) 6s. net.

"Hunting in the Olden Days." By W. Scarth Dixon. (Constable.) 21s. net.

"Song Lyrics and other Poems." By Ethel D. Batt. (Constable.) 2s. 6d. net.

"The Pupil's Book of Constructive Work." Edited by J. S. Lav. Set II., Book I. 80 pp. Sewed, 4d.; cloth, 5d. Set II., Book II. 92 pp. Sewed, 5d.; cloth, 6d. Set III., Book III. 96 pp. Sewed, 5d.; cloth, 6d. Set III., Book I. 80 pp. Sewed, 4d.; cloth, 5d. Set III., Book II. 80 pp. Sewed, 5d.; cloth, 6d. Set III., Book III. 80 pp. Sewed, 5d.; cloth, 6d. (Macmillan.)

"The Good-night Stories: a Volume of Fairy Stories Suitable for Schools." By Margaret Gibbons. Fully illustrated by Gladys Thomson and Beryl Reid. 88 pp. (The Year Book Press.) 2s. net.

## CORRESPONDENCE.

*The Editors do not hold themselves responsible for the opinions expressed in letters which appear in these columns. As a rule, a letter criticising any article or review printed in THE SCHOOL WORLD will be submitted to the contributor before publication, so that the criticism and reply may appear together.*

#### Science in Girls' Schools.

I HAVE had some fourteen years' experience in teaching science to girls, and am of the opinion that nothing can replace the value of the training in inference from observation, and in forming conclusions arrived at by actual experiment, which is the outcome of a two or three years' course of interesting lessons in elementary chemistry and physics in the middle school.

I have found the work best begun in an upper third form, and continued through the fourth forms. It can always be correlated with facts of everyday life, and the children will often suggest the experiments for themselves. It has not been found waste of time to let the children construct simple apparatus, e.g., balances, and if the work is arranged on these lines, it does away with the objection of the science teaching becoming too technical.

In my experience the attempt to introduce a "domestic science" element into the ordinary science curriculum results in a marked loss in the value of the training in scientific method, i.e., in the training given in leading the children to infer from direct observation, and eventually to make generalisations based on first-hand experience.

The knowledge of organic processes involved in "domestic science" is far beyond the scope of school work, and the teaching at once becomes dogmatic. To dogmatise is surely to destroy completely all that is best in the value and the spirit of scientific teaching.

It is desirable that training in domestic economy should find a place in the curriculum, perhaps as an alternative to degree work in the upper forms, but it will be a grave educational error if it is to be allowed in any way to minimise the value of the training which is given by chemistry and physics, and which can be given by no other subject.

With reference to biological science, including nature-study, botany, and biology, their educational importance again is quite distinct from that of chemistry and physics. Cultivation of the powers of observation, of the love of nature, of a sense of beauty, and even of the power to find enjoyment in the things of everyday life, has a value in the education of the child which it is difficult to estimate. An important introduction to the study of eugenics and of the higher stages of human physiology can be taught through biology in the upper forms, though this aspect of the work needs most skilful handling.

It is difficult to fit all these many sides of the science work into the time given in an ordinary school curriculum, but it is possible in a school where the children have a long school life, with scope for specialisation, and can be successfully attempted under less satisfactory conditions.

A plan which met with some success in a small school was to take botany in two forms for part of the year, and physics in the same two forms for the other part. Thus a one-year's course of botany and a one-year's course of physics were spread over two years, whilst neither subject was entirely dropped. A good deal of botany and nature-study has been found desirable in the lower school, to the exclusion of chemistry and physics, as the children cannot do

justice to the latter subjects until the muscles of their fingers are sufficiently well developed to make experimental work of value.

E. M. HUGHES.

County School for Girls, Tunbridge Wells.

I HAVE felt compelled to offer some remarks in connection with the papers published in your December issue on science in girls' schools, because of simultaneously reading an article in another educational paper on these troublesome domestic subjects. The contribution pointed out that many teachers of domestic subjects would appreciate the policy some education authorities were adopting in appointing women advisers to act as guides, philosophers, and friends. In connection with the many efforts which are being made to get a satisfactory scheme of science work related to domestic arts women advisers should be plentifully found amongst science-mistresses of all grades. Those who possess the scientific attitude of mind—and there is a widespread recognition in the papers contributed that a study of science will confer such a desideratum upon pupils—should be willing to help on the development of the connection between science and the domestic arts.

The fundamental virtue in a scientific mind is to see things as they are, and then it will not be a difficult process to recognise that there must be a very intimate relationship worth developing between the phenomena of occupations and science.

The problems produced by linking up an art with science must help to amplify and strengthen the latter.

Why should we object to speak of domestic science and shudder at the association of the two words? Many science-mistresses take up the position that Huxley did towards the term applied science; he hated it. Do we not speak of agricultural science, of medical science, of engineering science, and of the science of education? These consist of a department, or departments, of pure science, and are directly related, and adapted, to the arts of farming, healing, engineering, and teaching. We recognise that the soundness of these applied sciences depends upon the soundness of the sciences from which they draw. They may not aim directly at adding to the sciences from which they draw, but the problems they have brought forward have had the effect of improving these sciences.

If the art of farming, healing, &c., may utilise the sciences for their improvement, why not the art of housewifery? The relationship between the art and pure science is fundamentally the same in each case. These applied sciences contain a body of pure science definitely used and shaped for practical purposes. Domestic science has the right to be recognised as an undeveloped member of this family of applied science.

I should like to criticise much in the contributed papers, but must content myself with matters which, with all humility on my part, do not seem to be based upon that scientific attitude which is such a desirable thing.

One contributor describes an experiment on the solubility of potatoes, to which she gave "a fair trial," but unfortunately it resulted in a failure. Faraday used to say that he learnt more from an experiment that was a failure than from a successful one, and I am disposed to think that if all the difficulties in connection with this experiment had been discussed more would have been learnt than from a simple experiment on salt or any "other soluble powder." I am not going to defend the selection of potato for the experiment, nor attack it, inasmuch as I do not know for what standard of student it was suggested by the domestic science enthusiast. There are other things with the flavour of the kitchen about them,

e.g. salt, soda, and sugar, which could have been suggested by the enthusiast. Perhaps the enthusiast assumed that these had already been previously used in the students' experimental work. Anyhow, there was a fine opportunity for any science-mistress present when the suggestion was made to act as a woman adviser, and to submit to the enthusiast any difficulties foreseen.

Do not all our nicely arranged schemes of work profit by our previous experience? We set students to crystallise out salts made from their constituents, but an experienced teacher does not suggest the preparation of copper sulphate from the oxide and sulphuric acid to an elementary class. Elementary science work has profited by experience of the inadvisability to do so, and it might be excused if domestic science treads an experimental path of thorns in working out its salvation; it need not if science will give, as it should, a helping hand based on its experience.

I am a little doubtful of the suggested experiment having had a fair trial. It is urged that it was more tiresome for the girls to get equal masses of potato than salt. What inconveniences some natural products put on us poor mortals! I hope all chemical work is not free from this charge. It seems to me to be a good antidote to the idea that every experiment must work quickly and smoothly. Does not facing difficulties develop skill? Moreover, I have known elementary-school children to cut up potato into one cubic centimetre pieces with very little difficulty, and I cannot think it would be difficult to trim pieces to the same weight and practically the same surface: see the second difficulty stated in the paper. Is it necessary that there should be equal surfaces? If one is comparing the solubility of common salt in hot and cold water, is it necessary that the total surface of the particles should be equal in each experiment? Of course, if one has to compare the rate at which a substance dissolves the surface would have to be a considered factor.

Was it necessary to complicate the experiment by bringing in the question of equal surfaces? It seems to have been straining at a gnat, when one sees what was swallowed in other parts of the experiment.

The question of skin on, or off, or partly on and off, was one to be decided by the object of the experiment. It must have been intended by the enthusiast to take the potato in the state usually served up, and not in the unscientific way of being partly skinned.

May I ask if it were necessary to risk the boiling of water in the measuring jars? Is it not the usual procedure in a normal laboratory to measure off a certain volume of cold water and then transfer it to a beaker for boiling. The fourth difficulty brought out the fact that the boiling water was acting as a disintegrating agent towards the potato, doing the work which should have been done at the beginning if maximum solubility were required. We are told the slimy liquid would not filter, and the penetrative power of a hatpin had to be utilised on the filter paper. In the experiment described in the contributed paper the slimy liquid, after being liberated from captivity by the hatpin, was put into a porcelain dish and then evaporated on a sand-bath, when charring or "burning" took place. Was it not to be expected that there would be "toasting of bits of potato" in such circumstances during the evaporation? If it were intended to reduce the experiment to a failure, then a sand-bath was the proper apparatus, otherwise the water-bath should have been selected.

If the experiment had been carried out in a scientific manner it would have been quite successful in showing the greater solubility of potato in boiling

water than in cold, inasmuch as the granulose constituent of starch is slightly soluble in hot water.

At the time of writing "potato water"—water in which potatoes have been boiled for twenty minutes—is filtering fairly rapidly before me. The slimy and insoluble material has been allowed to subside, the supernatant liquid decanted on the filter paper, and 50 c.c. have filtered in fifteen minutes. The filtered liquid is very slightly opalescent, showing a small quantity of starch present.

I have now exceeded the space that can be allotted to my remarks, otherwise I should have proceeded with the paper which criticises a scheme "which deals with milk first." The criticism of this scheme is based upon the idea that the experimental way is the "only way" to a knowledge of science, ignoring the phenomena of daily life upon which much may be built.

To overcome the force of training and to disestablish conventions, even in the scientific world, is apparently not an easy task.

JOHN B. COPPOCK.

Education Department, County Hall, Wakefield.

DURING the past fifteen years I have been engaged in experimenting with the teaching of chemistry and physics to mixed classes of boys and girls, the teaching of botany to girls, and domestic science to a school of cookery. As a result of the experience gained I have come to the conclusion that the most satisfactory science course for girls is a combination of botany (biology of plants) with chemistry and physics. Such a course allows the "Armstrong method" to be used almost entirely in the earlier, and occasionally at later stages of the course. For a five or six years' course the following order would be taken:—

*First Year.*—Elementary physics following heuristic methods.

*Second Year.*—A few "discovery" lessons on air, iron rust, &c., to show the nature of scientific method as applied in chemistry.

*Third Year.*—A course of chemistry arranged to make an ordinary text-book of the subject intelligible to a girl. For example, the distinction between elements, mixtures, and compounds; the use of formulæ and equations; and an experimental study of the simpler compounds of carbon and nitrogen would be included.

*Fourth and Fifth Years.*—Botany.

In the case of girls who were not going into professions, a course of biology would be substituted for botany, and in all cases special attention would be given to any practical applications arising from the subject studied. For example, the subject of foods would be considered pretty fully when the lessons on "seeds" were being taken. No hard and fast line would be drawn between one science and another.

The advantages which I claim for this mixed course are as follows:

1. The methods of chemistry and physics, as well as those which are peculiar to biology, are taught.

2. It effects a compromise between those teachers (they must please pardon me if I call them old-fashioned) who still believe that we teach a subject with the idea of developing a "faculty" for something else, and those who, more correctly, I think, have no belief whatever in the existence of such general "faculties." Several of your contributors in the December symposium speak of "a faculty of observation," "a faculty for logical reasoning," "a faculty for research," &c.

3. Pupils following this course do not fall into the common error that the behaviour of living things is to be explained by the laws of chemistry and physics alone. The phenomena of life are unique, and, as Prof. J. A. Thomson has recently shown in his articles in *The Hibbert Journal*, require methods other than those of physics and chemistry if any attempt is to be made to explain them.

4. The rousing of a sense of wonder in the mind of the girl, which Miss Storr, in her admirable contribution, speaks of as one of the objects of our science teaching, can be much better effected by a study of the facts of biology than by those which are usually included in a physics course.

5. The study of foodstuffs becomes much more intelligible when attacked from the biological point of view. The absurd tests for proteins which Miss Freund so severely criticises can be replaced by fairly accurate observational and microchemical tests. The tests for the food substances given in Prof. Halliburton's "Chemical Physiology" are, to say the least, as accurate as those given for the metallic bases in, sav, Fenton's "Notes on Qualitative Analysis."

6. Bacteria, moulds, insects, &c., play so important a part in the house that an intelligent study of these is probably of more value than even the chemistry of the proteids.

7. All the subjects usually taught in a course of domestic science could easily be worked into the scheme, provided the teacher has studied the borderland which lies between chemistry and biology. It is, I believe, essential, if the scheme is to be a success, that those responsible for teaching it shall have an adequate knowledge of both biology and chemistry, and especially of the ground common to the two subjects.

A. W. ELLIOTT.

County Intermediate School, Aberdare.

#### The Direct Method of Teaching Classics.

THE difference of method in teaching Latin and Greek depends a great deal upon the difference of aim. There are, above all, two conflicting aims put forward—the study of classics as a literary and artistic training, and classics as a scientific training in language, &c.

The scientific spirit has had a considerable influence on most studies, and in particular on classics. It can be seen in the very idea connected with the word "scholar," the essential characteristic of a "scholar" being considered a punctilious accuracy. It is the influence that has brought so much to the front the science of grammar, of philology, of etymology; that has made for paying more attention to the metre of Virgil than to his poetry, to Homeric grammar rather than to the world of Homer. It is the influence that has shown itself in the recent substitution in the Cambridge Tripos of "study of metres" for verse-writing.

If such be our aim, and we consider the study of classics chiefly a training in scientific accuracy, we cannot begin too early with studies of accident, of syntax, and what-not else. But if it is not, if we think classics essentially a training in literature and in "the humanities," it will be hard indeed for any boy to know the joy of classics whom long years of tedious grammar work have taught to hate them.

And I think classics is essentially a training in the humanities. While other subjects deal with things, and others again with theories, classics deals with *men* and with *life*; to make it merely a study of words is to debase it; it is human, it is real. The popular idea of a classical scholar at present is an old pedant or an old fogey, the result of long years of devotion to "scholarly accuracy" and the minutiae of language;



but if only taken aright, classics, that is so human and so varied in its appeal, should be, above all, the training to bring forth human, real, and living men with wide sympathies and ideas.

Now I want to keep this aim in mind because thereon depends our method of teaching. To begin with a long period of laborious grammar is the surest way of making a boy hate Latin and Greek, and all that is connected with them. But the life, the world of Greece and Rome, if treated aright, has a living interest for everyone. This is what we want; only let this interest be aroused, and the rest will follow soon enough; we are ready to take trouble over what interests us. Give an ordinary boy some theoretical figure of Euclid with its A, B, C, D to study; he will naturally have no liking for it. But supposing that same boy wants to make a model aeroplane, he will labour over some far more complicated diagram with eagerness. If only interest can be aroused in the first year, there has been done all that would be asked, however much some examiners may complain that no "work" has been done.

The direct method taught me the joy of classics. After that, so soon as I realised how the study of grammar and the exacter sciences would help to a better and wider understanding, I turned to them and did more quickly and readily what would before have been a long and irksome task.

To give an example of that. When I was thirteen and knew very little Greek we began reading Homer. Now I suppose that under the ordinary system we should have learnt the elements of Homeric grammar and gone along very slowly and carefully, parsing every other word. Severer scholars will perhaps be shocked to hear that we did nothing of the kind. Save for a few necessary explanations we read on rapidly and pleasantly, and I remember my personal decision was that the endings were occasionally rather queer, but the sense was clear enough—a sad state of mind.

But I enjoyed Homer. That was what mattered then. I added him to Malory and Shakespeare, to Mark Twain and H. G. Wells, and the rest of the motley collection that formed my "favourite authors" at the time. He and his books were *real* to me. They were no "school books" to be "worked up." That was what mattered far more than to know the Homeric forms of the genitive singular of second declension nouns.

Two years later we returned to Homer. By then I knew the importance of grammar in Homer, of archæology, and of all the other things that crowd round his writings. I was interested in them, read of them readily, for I knew how much they made for a greater appreciation and enjoyment.

Now there is a fair example—if anything an extreme example—of the working of the direct method and its results. The first thing, above all, was interest and appreciation; but the scientific side was not lost sight of; that came later, and by that means the scientific side was studied without destroying the beauty and the poetry. For how many people has not Homer been spoilt by Homeric grammar?

I believe that this is the claim of the direct method: instead of making Latin and Greek synonymous with all that is dry and repulsive, it opens to all (not merely to specialists) a real enjoyment and appreciation of classics. It is only necessary to see a class to understand what life and enjoyment there can be in a classical lesson.

I have been asked to say how I should have preferred my early training to have been managed. My only wish is that it had been still more unhesitatingly on the direct method. By that I do not mean that I

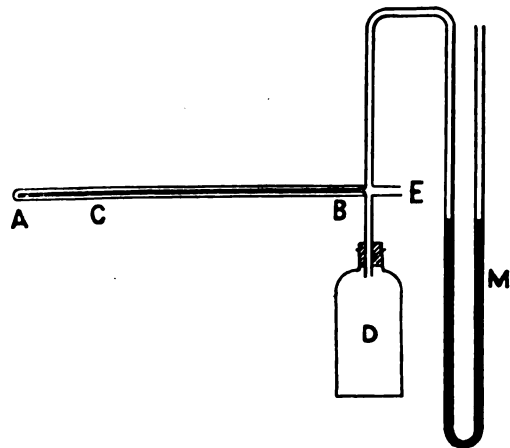
wish English had been altogether excluded. To exclude English altogether is, I believe, a mistake, for it is not only very often a great help in explanation, but without it many things are fairly sure not to be properly understood. But I have in mind some recent extensions of the system, as, for example, the method of reading and acting short, specially written plays, which must do an enormous amount to make the world of Greece and Rome, not strange and bewildering, but intimate and real. R. P. DURR.

[We invite attention to a paragraph on p. 67 referring to this interesting statement of a student's experience.—Eds.]

#### A Form of Boyle's Law Apparatus.

THE apparatus is shown diagrammatically in the accompanying sketch. AB is a piece of thick-walled glass tubing about 100 cm. long and about 15 mm. in internal diameter; it is closed at A. A thread of mercury C encloses a column of air AC about 25 cm. long.

The open end of the tube is connected to a bottle D (filter flask or Winchester quart), which serves as an air reservoir; it is also connected to a mercury manometer M, the limbs of the latter being about a



metre long. The tube E is fitted with a tap or a clip, and communicates with the external atmosphere or with a pump. All rubber-glass joints must be wired.

In order to perform an experiment with the apparatus, the tube AB is clamped horizontally. While E is open to the atmosphere, the length of the air column AC is observed, and also the barometric height. Air is then pumped into the air reservoir by means of a small pump, a football pump being satisfactory. The length of the air column is again read, the change in pressure being obtained from the mercury manometer. The pressure may be raised to two atmospheres without difficulty.

After the pressure has been brought to that of the atmosphere, it may be reduced by means of a filter pump or exhausting syringe until it is about one-third or one-quarter of an atmosphere.

The apparatus has a wider range for its size than the usual form, and the method of varying the pressure appeals more strongly to beginners. The parts of the apparatus can be arranged in a manner convenient for storage purposes, AB being mounted on a hinged board.

FREDERICK RECORD.

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### Movements in Handwriting.

I HAVE read with great interest the article in the October, 1912, issue of THE SCHOOL WORLD on "Movements in Handwriting." It has occurred to me that those of your readers who are interested in the problem raised by the Montessori method might care to know what is the plan adopted for learning to write (or paint, should we say?) the Chinese characters in Chinese schools.

The child (for writing begins from the moment he enters school, at about five years old) is given a piece of thick cardboard on which are printed, some twenty times larger than the ordinary written forms, several of the easier Chinese characters. Over this he holds a sheet of very thin paper, and then traces with the brush-pen the form of the character. When he has learnt how to write the forms on this card he passes on to another, more difficult.

Further, if in the course of conversation with a pupil one asks him which of the many ideas represented by a certain sound he wishes to convey, he will trace on his palm or on the table the form of the character which stands for that idea.

The reading of the American translation of "The Montessori Method" has led me to think that especially for the Chinese, her method of impressing the forms of Western letters on the mind of the child has a great deal to recommend it. I commend the idea to the notice of any of your readers who may be engaged in educational work in China.

ERNEST W. SAWDON.

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Chungking, West China.

### The Leaving Certificate of Scottish Schools.

I HAVE read Mr. MacGillivray's paper on "The State Leaving Certificate of Scottish Schools" with interest, and I write in the hope that some of your readers may be able to supply further information about the various types of Scottish schools indicated in the diagram on p. 6 of your January issue.

(1) What is a higher grade school? In what respects, so far as curriculum and staff are concerned, do these schools differ from Scottish elementary schools?

(2) What is a higher class school (curriculum and staff)?

(3) Are higher grade and higher class schools to be found in Scottish rural areas?

(4) Are supplementary courses taken, as a rule, in rural areas? For example, do the children above twelve years of age in a rural elementary school (say fifty on the roll) join a supplementary course at the school itself, or at a centre specially provided for the purpose? If the course is taken at the school, is an extra teacher appointed to give the instruction?

(5) If in small rural schools children are grouped in the top class for three or four years, and the child of fourteen has to be taught with the child of ten, how is due progress provided for?

From the note on p. 25 of THE SCHOOL WORLD it seems likely that the child in rural Scotland suffers in much the same way as the child in rural England.

ALPHA.

THE editors have asked me, as writer of the article in question, to reply to the interesting and searching queries of "Alpha." In doing so I have to express my regret that I did not define my terms more clearly in the original article.

(1) The higher grade schools in Scotland represent in everything but curriculum the former higher grade schools of England, the knell of which was sounded by the Cockerton judgment. Both were the outcome of the extension upwards of the best elementary schools

—an extension which was in accordance with precedent and statute in Scotland, though not in England. Higher grade schools provide a three- or a five-years' course of instruction in English (including history and geography), at least one foreign language, mathematics, science, and drawing, for pupils who have passed the qualifying examination. Classes in these schools must not exceed thirty on the roll, and the teachers are required to have the honours degree of a British university (or have other approved specialist qualification), and to have undergone a course of practical training. In almost every instance these schools are free, and are supported from the rates, like the ordinary elementary schools.

(2) Higher class schools correspond in the main to the grammar schools, municipal secondary schools, and endowed schools of England. They are in every instance fee-paying schools, but are required to reserve a certain number of places for bursars. The course extends as a rule over five or six years, and the curriculum is the same as that demanded of higher grade schools.

The regulations as to staffing and the qualifications of the staff are also the same as laid down for the higher grade schools.

(3) Higher grade and higher class schools are both to be found in rural districts, but the former largely predominate.

(4) Practically every elementary school, whether in urban or rural areas, has a supplementary course, unless a convenient centre has been set apart for this purpose. Special capitation grants of £2 10s. are given for pupils in supplementary courses, and this in many cases, together with a special grant-in-aid that is provided to encourage better staffing in small schools, ensures that the instruction is properly overtaken. In a majority of instances, however, the staffing is inadequate, and supplementary classes mean increased work for teachers.

(5) This query raises a large question—the whole problem of the rural school. There is no doubt that in many rural districts the new centralised system, which has conferred immense benefits on the country generally, has borne harshly on the poorest section of the rural population, especially in the Highlands and isles. These must get their higher education within reach of their homes or go without it altogether. This part of the educational problem is not being lost sight of, and some remedy or alleviation of present conditions must be found.

D. MACGILLIVRAY.

## The School World.

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# The School World

A Monthly Magazine of Educational Work and Progress.

No. 171.

MARCH, 1913.

SIXPENCE.

## THE ICE HATH TAKEN TOLL.

Thronging through the cloud-rift, whose are they,  
the faces,  
Faint revealed, yet sure divined, the famous ones of  
old?

FROM the dim vistas of the past, many "famous ones," who have sacrificed their lives for an ideal, welcome to like immortality that band of heroes whose mortal span ended amid the snowy vastnesses of the frozen South.

So long ago as 1553 there sailed from the Thames the expedition of Richard Chancellor, whose aim was the exploration of the northern parts of the world. In July, the three ships of the expedition passed the northernmost point of Europe, and during a storm Sir Hugh Willoughby, with two ships, was separated from Chancellor, who eventually reached England safely. In September, Willoughby was forced to winter off the coast of Lapland: in January, according to Willoughby's journal, all his men were alive. In the following spring, Russian sailors, to their astonishment, found two ships fast in the ice. Not a man had survived.

The Russian explorer Bering, who had previously explored the straits which bear his name, sailed in 1741, from Kamtschatka, for further exploration. His expedition met many misfortunes, failed to reach lat. 60° N., and the homeward voyage was begun. The crew were attacked by scurvy, and eventually they found a haven on Bering Island, where the brave old hero died in December, 1741. His monument is on every map of the world.

These are but two examples of the toll taken by the ice from all the expeditions which penetrated polewards from the open sea. Indeed, so heavily was the toll levied that men lost interest in the Arctic, and this waning interest was not revived until the peace which followed the close of the Napoleonic wars.

By 1820 the necessity of limiting the boundaries of those Canadian colonies, which had begun their appeal to the minds of

Britons, led to determined efforts to trace the Arctic coast of Canada. The names of the leaders and patrons of the various expeditions crowd the map of the north Canadian coast, and of them all the name of Sir John Franklin is most prominent, partly on account of his noble character and heroic death, and partly on account of the heroic devotion of Lady Franklin, who persisted in her efforts to secure the dispatch of expedition after expedition until, after thirteen years, the mystery of her husband's fate was solved. Franklin helped in both land and sea exploration; in 1820-1 he took part in the exploration of the coast near the mouth of the Coppermine. On the return, winter set in as the provisions gave out. "Franklin lay down and lived on offal." Eventually an Indian was found, food was procured, and the survivors were safe. In 1825-7 Franklin descended the Mackenzie and sailed along the Arctic shores westwards beyond the Alaskan boundary.

It thus happened that, by 1845, many points upon the Canadian coast had been established, but the map was incomplete, and in that year Franklin sailed in the *Erebus* and *Terror*, a party of 129 men, with the express intention of completing the survey. Provisioned for three years, they vanished from the world's ken almost at once, and after three years had elapsed the search began. In 1859, at Point Victory, on the north-west coast of King William Land, the chief Franklin relic was found. A form of the kind usually supplied to ships engaged in exploration contained a printed request, repeated in six different languages, that the finder would send it, with a note of the time and place of discovery, to the secretary of the Admiralty. Upon this was found the record. Under the date May 28th, 1847, it was stated that the expedition had reached lat. 77° N., had turned southwards, to winter at Beechey Island. All were well and Sir John Franklin was in command. So far a record of wonderful success, the fruits of Franklin's determined effort appeared to be

within his grasp. But round the margin of the paper was a second message in a different handwriting. "April 25th, 1848: the ships were deserted on April 22nd, having been in the ice since September 12th, 1846. Sir John Franklin died June 11th, 1847, and the total loss to this date has been nine officers and fifteen men. The rest (105 in number) landed here and start to-morrow for the Great Fish River." The ships had been provisioned for a period ending July, 1848, and in April of that year the retreat by land was begun. Not a soul survived. Franklin had succeeded in his object, the North-west Passage had been discovered; but the ice had taken its toll.

Not until 1906 did any ship traverse the North-west Passage, but in that year the *Gjoa*, under Roald Amundsen, reached the haven of San Francisco; she had left Christiania in May, 1903.

The American Arctic expedition of 1879 was to attempt the pole by way of Bering Strait. The *Jeannette* was gripped by the ice; in January, 1880, she sprang a leak; the next summer she floated for four days and was again frozen in; and on June 12, 1881, she was pinched by the ice and sank in a few hours. The drift of the *Jeannette* during these many months is a curious zig-zag line upon the polar chart. After a week on the ice, nine loaded sledges and five boats with provisions for sixty days were moved landwards, the intention being to make the mouth of the Lena river. The road had to be traversed thirteen times, seven times pulling loads, six times empty-handed, so that the men walked twenty-six miles to move their equipment two miles. Several weeks were so spent, and then it was found that the northward drift of the ice was so rapid that they were losing ground daily; but, in July, Bennett Island was reached. In the early winter three parties took to the boats, and, amid storms and famine and piercing cold, some progress was made. Finally, one boat, under the command of Chief Engineer Melville, reached the Lena. Melville and some of his party lived. The commander, De Long, brought his boat safely to land, but, although two survivors made a heroic march for help, the commander and the others perished of cold and hunger.

In the interests of scientific investigation it was arranged that from August, 1882, synchronous observations should be taken in a series of international circumpolar stations. The records so obtained have proved of inestimable value. The United States expedition to Lady Franklin Bay, 81° 44' N., was under the command of Lieutenant Greely, and left Newfoundland in July, 1881. Camp was estab-

lished and work begun: many arduous sledge journeys were undertaken. The relief ships were mismanaged, and, his work accomplished, Greely had to push homewards and depend entirely upon his own efforts. In 1884 the few men left were only just alive when they heard the whistle of a steamer. Two men struggled out from the camp, and the search party, entering the cove by boat, saw one of them make a signal and approach; twice he fell. The rescuers saved seven men, but one unfortunate died from frost-bite on board ship. When they reached Greely's tent, the rescuers cried. "Greely is that you?" In a faint, broken, hesitating voice came the answer: "Yes—yes—seven of us left—here we are—dying—like men. Did what I came to do—the best record."

The map of Greenland contains two names along its northern shores—Peary Land and Mylius Erichsen Land. Rear-Admiral R. E. Peary attained the north pole as a crowning result of twenty-three years' devotion to Arctic exploration; but one of his most remarkable and hazardous journeys is commemorated in the name "Peary Land." He explored the north-west coast of Greenland and crossed the interior in its neighbourhood; he suffered greatly, and, but for a fortunate meeting with musk-ox, would have perished of hunger. This success left only the north-east coast unexplored, and in 1906-8 a Danish expedition, under the leadership of Erichsen, proceeded thither for the purpose of scientific exploration, with a possible dash polewards. Frequent observations were taken, and a theodolite triangulation was attempted. For further work four sledge parties left the base-camp. Three safely returned; the fourth, under the leadership of Erichsen, was lost. Erichsen and two companions were confined during the summer of 1908 to a small territory near Denmark Fiord; travelling over the inland ice of Greenland is impossible in the summer. By the middle of the summer their food was exhausted, and they had no footgear. They attempted to reach a depôt; daily they crawled out of dilapidated sleeping bags and pushed forwards barefooted over the inland ice. They had but one determination, to push onwards so that they might leave their records where their comrades could find them. Brönland was the last survivor; he crawled the last few miles to the depôt, ate some of the food there, wrote his last report, wrapped himself in his fur and succumbed. His report concludes: "I perished in 79° N. lat., under the hardships of the return journey over the inland ice in November. I reached this place under the waning moon, and cannot go on because of my frozen feet and the darkness. The bodies

of the others are in the middle of the fiord. Hagen died on November 15th, Mylius Erichsen some ten days later." The records of the scientific work of these three heroes were retrieved by an expedition under the leadership of Einar Mikkelsen, which reached Greenland in 1909. They were found in a cairn near Erichsen's summer camp. Mikkelsen and a companion, Iversen, achieved a remarkable sledge journey. They were away for three years; during twenty-eight months they were alone, "lost in the Arctic," part of the time so weak that it took an hour and a half to walk 1,000 yards.

The pursuit of knowledge in the Arctic has cost many lives, and the dangers of the ice have enriched heroic literature with the stories of the efforts of many great men, "the famous ones of old."

How of the field's fortune? That concerned our Leader!  
Lad, we struck our stroke, nor cared for doings left and right:  
Each as on his sole head, failer or succeder,  
Lay the blame or lit the praise: no care for cowards: fight!

The Arctic ice has claimed its toll: that of the south has not been less heavy. The Ross Ice Barrier has been the scene of four great sledge journeys. In 1902, Captain Scott, Dr. Wilson and Sir Ernest Shackleton were returning from their "Furthest South"; their dogs had failed, scurvy had attacked the party, and Scott and Wilson, by dint of heroic efforts, saved their companion and all reached the winter quarters in safety. In 1908, Shackleton's party of four was returning in similar fashion; their ponies dead, they had to pull their sledges. Dysentery broke out, and Shackleton, by a heroic final dash, brought relief to the two chief sufferers, and the four were saved.

Road Amundsen led four companions to the south pole and attained it in December, 1911; his dogs held out, his supplies were always sufficient, and by a combination of great foresight and the fact that no untoward events happened, his efforts were successful; no polar work appears to have been carried out with such ease. At the pole he left a letter for the King of Norway. On January 18th, 1912, that letter was found by a party of five—Captain Scott, Dr. Wilson, Captain Oates, Lieutenant Bowers and Petty Officer Evans. Their winter quarters were near Ross Island, 700 miles from Amundsen's camp on the barrier ice near the Bay of Whales. In the spring of 1911, expeditions started southwards from both camps. Captain Scott was delayed by the loss of some of his ponies, but with the

help of supporting parties and the remaining ponies he reached 147 miles from the pole. The last supporting party turned back, and the five men passed on polewards, depending upon their own strength to pull their sledges. On them the curtain of last winter's Antarctic darkness fell.

We have now to mourn their death. The laconic message, "Scott dead," conveyed to many by the poster of an evening newspaper, has stirred us all to the depths. Toll has again been paid. No previous expedition was travelling southwards at a date later than January 2nd, yet Scott and his companions did not reach the pole until January 18th. When they began the return march the season was unduly advanced and progress was delayed by the sickness of Evans, who succumbed on the Beardmore Glacier from concussion. The weather was very severe, and travelling was difficult since the snow resembled sand in consistency. Yet, despite these troubles, they persisted in bringing back their collection of specimens, and this must have increased their labours. Captain Oates suffered severely from frost-bite, and his companions delayed their progress to help him. Captain Scott wrote: "He was a brave soul. He slept through the night, hoping not to wake, but he awoke in the morning. It was blowing a blizzard. Oates said: 'I am just going outside and I may be some time.' He went into the blizzard, and we have not seen him since."

On March 21st, 1912, Captain Scott, Dr. Wilson, and Lieutenant Bowers were forced to camp in latitude 79° 40' S. They were eleven miles—about a day's journey—from a depôt, "One Ton Camp," where there was at least a ton of stores. They had food for two days and fuel for one hot meal; it was blowing a blizzard. They were unable to leave the tent, and on March 25th Captain Scott wrote his last message and his final appeal on behalf of those who are left behind. He wrote: "We took risks—we know we took them. Things have come out against us, and therefore we have no cause for complaint, but how to the will of Providence, determined still to do our best to the last."

The message signed, Captain Scott placed it with his diary between his head and the tent-pole, and, leaning against the pole, met the end.

Then the cloud-rift broadens, spanning earth that's under,  
Wide our world displays its worth, man's strife and strife's success:  
All the good and beauty, wonder crowning wonder,  
Till my heart and soul applaud perfection, nothing less.

B. C. W.

## LORD HALDANE'S SCHEME OF NATIONAL EDUCATION.

By J. L. PATON, M.A.

High Master, Manchester Grammar School.

"AN enlightened policy in education is the order of the day over most of the civilised world," says Lord Haldane. It is the corollary of democracy. There can be no real democratic government "of the people, by the people, for the people," until that "enlightened policy in education" is put into force. What are the general lines on which such a policy should proceed? What are the first steps that should be taken?

What English education needs now is not reconstruction from without, but orderly organic growth from within; not revolution, but evolution. The essential condition of growth is peace and quietness. Whatever else the Government does or leaves undone, let it not reopen the religious controversy. Directly that battle-flag is spread on the breeze, the voice of education is drowned amidst the vociferated logic of the tub-thumpers. The probable result of another "furiously historic" year such as 1906 would be that the nation would get rid of the religious difficulty altogether by getting rid of all religious teaching from the schools. That would mean disaster. There is no heresy so dangerous as that which says, "The State is concerned only with secular matters." If so, the State has no concern with education, for education is, above all things, a spiritual endeavour, a cure of souls. True, I may not approve all the teaching which is supported by the rates towards which I contribute, but such teaching is a thousand times truer than the negation of silence. Above all things, let us keep education outside the storm area. The welcome feature of Lord Haldane's scheme is that he keeps the larger, higher aims steadily in the foreground. When men fix their minds on these higher aims, petty controversies, at any rate, assume their right proportions, if they do not altogether disappear. Growth is what we need, and growth postulates peace.

The growth of human institutions must, however, be *zielbewusst*, it must be conscious of its aim. Lord Haldane states the aim thus: "What is really essential is that everyone should have a chance." This we accept, everyone accepts. The Empire needs all the brain it can get: the best in quality, the most in quantity. And brain, if it is to be of service, needs all the training it can get. No one denies that there have always been facilities for lads and lasses with brain-capacity to rise to positions of great serviceableness to their species. These facilities are now more numer-

ous and widespread than ever before. But no one would deny that even now there is much brain capacity which never gets a chance. We have facilities, but we have not a system. Facilities need to be, as they say in Scotland, "homologated." There is gratuitous wastage which needs to be stopped.

In our elementary schools there is the waste which accrues from the abolition of homework. Now payment by results has gone by the board, there is no danger of abuse. The abolition of homework has severed the bond which connected home with school, and has left a fatal vacuum of evening hours into which the unclean spirits of the street-corner, the picture palace, the halfpenny horror, and the gambling papers have not been slow to enter. There is the waste of the adolescent years after school is over. Just as the boy is becoming old enough to see the real drift of all he has been learning, in the most plastic years of his life, he is let loose on the streets and in the workshop without any educational supervision. This is the most important strategic point of all to secure. A strong hand is needed here, for there can be no compulsory continuation schools without legislation restricting the hours of juvenile employment. Says a notice at the Post Office: "Wanted, boys from 13 to 15. Must be able to show that they are not liable to school attendance." Such notices will not be issued by any employer, whether Government or other, when our next education reform has been carried.

Next comes the question of secondary education. At present, in our English anomalous way, we are combining the fee-system with the free-system. There is no doubt that secondary education is beginning to broaden down, and is tapping now whole strata of population which never aspired before to anything beyond the legalised minimum of knowledge. There are many hopeful signs of growth and consolidation. Probably most teachers would be satisfied to go on for the present on the basis of 25 per cent. free places. At any rate, we insist that the standard of qualification shall not be lowered. In many cases it needs to be raised. It is at the higher stages that the pinch is felt. The way from the elementary school to the secondary school is broad and open. The way from the secondary school to the university is narrow, and few there be that find it. A glance at the scholarship scheme of any local education authority at once shows the discrepancy. Take, for instance, a leading authority like Lancashire. It offers five hundred junior scholarships and free places for secondary schools, but when these students come to knock at the door of the university, the five hundred are winnowed down to fifteen.

Three per cent. is a small percentage on a picked set of scholars. Secondary-school teachers do not want to see every secondary-school scholar pass on to the university, but it is abundantly clear that the present facilities for university training are insufficient, and, if the new civic universities are to fulfil that place in our national life which the Chancellor of Bristol claims for them, the door must be opened wider.

This raises another question which calls for immediate treatment. Hitherto the secondary schools have been bound hand and foot by university examinations. These examinations fifty years ago were a help to us, but they have not grown with our growth. We are no longer single units disunited and looking for direction. With a new consciousness of our function in the community, and a new insight into the meaning of our own special work for English adolescence, we claim to work out our own destiny and realise our own life. Hitherto we have taken for granted the requirements of the university entrance, or the requirements of the different professions and examining bodies. We have allowed them to mould our curriculum and dictate our methods. Now the situation is reversed. We are willing to co-operate with the university and with the learned professions, but we claim a right to develop our own curriculum, to experiment with methods and subjects other than those known to the dons, to develop our own life, to grow from within, adapting ourselves to the needs of our environment as a whole, with no narrow academic restrictions. The secondary school has been called "the educational laboratory of the nation." We claim the freedom that belongs by right to every student of research.

On this ground I would put in a plea for the private school. There are bad private schools and there are good private schools. The good private school is one of the most valuable assets of the nation. If it does national work, it deserves national support. To starve out some of the best teachers in the country is unpardonable folly. The wickedest of all forms of waste is the waste of personality. There are difficulties, I confess, but let no one say the difficulty is insuperable. Norway, Sweden, Denmark, give him the lie.

The note of personality brings one back to the core of the whole problem. Social progress, according to Mr. H. G. Wells, depends on the psychology of the minor official, and Sir E. F. du Kane has been telling us that the reclamation of a prisoner depends mainly upon the warder and turnkey. I speak as "a minor official." No administrative changes, however clever, no national expenditure, however lavish, can do anything apart from the

teacher. There is a danger in bigness, the danger that Wordsworth spoke of "lest numbers should swamp humanity." The vital strength of every organisation depends on the unit. In education the unit is the class. The unit should be small. Each child must be conscious of a personal human relationship with its teacher. The smallest, the weakest, must feel that it matters, that there is someone supremely interested in it and in what it becomes. "*L'état doit avoir aussi des entrailles.*" The only way to have them is through the minor official. Once secure the healthy unit and the healthy *upward* grouping of the units, and we have done something

To build the great Hereafter in this Now.

#### SCHOOL-BOOKS IN RELATION TO EYESIGHT.

OF all the "gateways of knowledge"—to the care, culture, and preservation of which so much attention is rightly directed in connection with the education of the child—the eye is that which has been the least safeguarded by methodised precautions in connection with its use; and particularly in connection with the process of visualising near objects, which plays so predominant a part throughout the school life of the individual. The child is taught to read and write: and by reading and writing he is expected to acquire and to express the major part of such knowledge as the school curriculum is intended to afford.

In this process, it is more or less generally acknowledged that there lurk certain risks which it is well to avoid, and certain procedures which it is wise to follow. It is recognised that the light should be ample in amount, good in quality, and properly distributed; the glossy-surfaced blackboard is out of favour: the posture of the pupil and the arrangement of his seat and desk are beginning to receive deserved attention. These and cognate matters are not only admitted to be of importance, but their due provision and adjustment are at least supposed to be regulated in relation to a definite standard of value in each case. But those things which the learner is chiefly obliged to look at—and which he must visualise with both ease and precision if his intellectual labour is to be at once harmless and fruitful; in fine, the printed matter which he is compelled to read—have continued, for the most part, to be presented to him in a form which too often falls very far short of the ideal.

In a general way, it is admitted that inferior paper, bad print, small and crabbed lettering are each and all harmful to immature eyes;

and from time to time attempts have been made to standardise print and paper, with other forms of "near work," along lines better adapted to the physiological requirements of early life. But such efforts towards improvement have mostly proved spasmodic, and the attempts to give them practical effect have been sporadic and perfunctory. If any be inclined to question this conclusion, let him spend a week in examining the average school-books (with their illustrations), the dictionaries, the maps, the Bibles and the prayer- and hymn-books provided for the use of pupils, from the infant classes upwards, in the schools of all types within his purview.

For these reasons alone, the report of its Committee on the Influence of School-books upon Eyesight, issued by the British Association for the Advancement of Science (a large part of which appeared in THE SCHOOL WORLD for October last), should receive careful consideration by all educationists. It claims respectful attention by reason of the recognised standing of the authorities responsible for its compilation. It is at once critical of the present position; explanatory of the conditions which make the human eye—and especially that of the young child—susceptible to injury by compulsory exposure to the strain involved by its use under unfavourable conditions; and helpful, because it gives clear and definite rules by which, it is claimed, such evils may be avoided. And, whatever debate may arise in connection with some of the regulations proposed, it must at least be granted that the suggestions which are formulated have been calculated to secure the end in view; while the whole *schema* forms a clear and connected set of rules, the general adoption of which would materially aid in removing one serious blot upon our present-day methods of education.

The Board of Education has already indicated that one of the duties of its school medical officers is to advise the local authority as regards defective eyesight, to indicate the measures required to remedy or mitigate its effects, and to direct attention to the strain imposed on eyesight by the use of too small type in text-books, the teaching of very fine sewing, &c. Much improvement in school arrangements has, in many cases, resulted from the advice thus tendered: but hitherto it has not been possible to arrange for the issue of satisfactory text-books. From the sixty responses received to a circular letter issued by the committee to the education authority of each county and county borough, it appeared that, with one or two important exceptions, no instruction as to the proper and improper use of the eyes in school-work had been given to teachers (the testing of

eyesight is now a compulsory subject for the Board of Education examination of training-college students); and that, while the detection and treatment of existing defects in the eyesight of elementary-school children are general, practically no systematic attention is given to the influence of school-books upon eyesight. In other words, we do, to some extent, try to recognise and to treat the mischief when it has been produced; but we leave untouched one of the most effective causes in the production of that evil.

The young child instinctively brings any small object close to his eyes (or his eyes close to it) in order that he may obtain the relatively large retinal image of the object which his immature visual organs require for its comprehension by his equally immature brain. Indeed, the eye is really a part of the brain itself—a specialised part which, in the higher animals, is drawn away from the mass of the brain by the forward projection of the facial part of the skull during growth, still retaining a direct connection with the visual centres in the brain by the bulky strands of nervous tissue which we call the optic nerve. Any "near work" entails upon the eye effort, pressure, and strain, which are apt to affect its soft and yielding tissues prejudiciously.

Fine sewing and reading are the two forms of near work to which young children are chiefly exposed, and from which they suffer most. Fine sewing is still, unhappily, too commonly taught to little girls in the great majority of schools; and delicate needlework wrought by members of the infant (!) classes is exhibited annually to the thoughtless admiration of a non-critical public, to the gratification of teachers something worse than thoughtless. Only a very few educational authorities have as yet followed the wise precedent of the London County Council in prohibiting the use of needles, thread, and stitches below certain specified minimum dimensions. It is not surprising, therefore, to learn that Dr. Agnes A. Parson<sup>1</sup> found that, while there was but little difference between the boys and the girls at the age of five, as regards the percentage of visual defects, a marked increase of ocular defects over boys of twelve was shown by girls of the same age.

Both sexes had, of course, learned to read during this period; and reading—as this is taught under the present conditions—must be regarded as the other form of near work, equally imposed upon both sexes, which is largely responsible for the various forms of acquired eye-defects common to both girls

<sup>1</sup> Report on the possible effect of needlework on the eyes of young children, shown by a comparison of errors of refraction in "entrants" at age five and "leavers" at age twelve of both sexes. By Agnes A. Parson. *School Hygiene*, February, 1913.



and boys, and found in increasing proportions amongst them as their age advances. It is with reading, and its connoted forms of visual effort, that the report of the committee is concerned; and it may be at once admitted that, were the recommendations which it has made carried into effect throughout the schools of this country—elementary, secondary, preparatory, and public—the advantages which would accrue to the rising generation, and eventually to the nation at large, would be enormous, and such as—measured by their material return alone—would many times repay the not excessive expenditure involved. Since these recommendations have just been issued as one of the appendices to the last report of the medical officer to the Board of Education, they may be deemed to appear with some official sanction; and it is not unreasonable to hope that the various educational authorities throughout the country will be stimulated to give to them sympathetic and practical consideration.

To this end, and were it only because their general adoption would do not a little to lighten the labours of teachers as well as of pupils, and to ensure better educational results, it behoves the teachers to make themselves acquainted with points specially concerned; and also to be on the alert to recognise those unsuitable qualities of print and paper, &c., which would justify them in bringing such under the notice of the school medical officer or of the local authority as undesirable for use by the children in their classes. It must not be forgotten that print and paper are not the only matters which should receive attention. The primary importance of sufficient illumination—effective both in its amount and in its distribution—must always be remembered. Wherever this is deficient or defective, or where it is likely to be so—as in the case of the lighting available for home and evening work in the dwellings of the poorer classes—the need for providing the pupil with printed matter of a type somewhat larger than that suitable for normal conditions should be borne in mind, as well as the application of this rule even in the case of adults.

The committee's recommendation that reading and needlework, except of the coarsest, should not be taught to children under the age of about eight years is doubtless physiologically sound. It is certainly in accordance with the natural course of events: for, left to himself, the child will not usually concern himself much with objects so small as ordinary printed type before that age; and probably for the simple reason that, until the eye has acquired its full development, he cannot do so with ease and comfort for any length of

time. At the same time, it is at least doubtful whether his education, in its true sense, would really suffer in such circumstances. At all events, it has been found that the normal child (whose education by other means need not be concurrently interfered with) who is not taught to read "until he begins to teach himself his letters" then acquires the art with unusual ease and rapidity, so that by the age of eleven or twelve he is at least the equal, and often the superior, of his contemporaries.

But if the teaching of reading is not to be deferred until such time as the eye is fully equipped for the business, it is but reasonable to insist that the method and the apparatus concerned should be so adapted to the stage of ocular development as to involve the minimum of strain and avoidable labour.

There is a passage in the first recommendation—dealing with the psychology of the reading process—which appears to be at least open to question; or perhaps it would be fairer to say that it seems liable to misunderstanding. The committee urges the importance of making the reading process of beginners "as easy as possible towards the recognition of word-wholes and phrase-wholes by the use of type suitable in character and judiciously spaced." Now, it is quite true that "the trained reader generally recognises whole words and phrases at a glance." For example, he recognises "embarrass" immediately by its general form and outline, without any appreciable attempt to differentiate its component letters in the process: so much so, that, if called upon to write that word, he may be momentarily in doubt as to whether it should be spelt with one "r" or two. If beginners are to be taught to read by word-wholes without first gaining a clear conception of the literal details of each word, there would result a large accession to the ranks of the "nu spellers," and also a vast increase of the pupils' labour and perplexities. For the young child's auditory centre is far more advanced in its development than is his visual centre. He hears with an acuteness and accuracy which enable him to memorise and reproduce sounds so heard with a correctness denied as yet to his appreciation of near objects especially. Hence it is on his auditory rather than on his visual memory that he is apt to depend. There is no difficulty in teaching the beginner the pronunciation of a word: and it would be comparatively easy to make him learn to recognise the bulk and form of that word at the same time. He would then carry away a quite definite phonetic memory of the word, and a fairly good memory of its form as a word-whole: but only the haziest and most indefinite knowledge of the several

letters forming it, and of their ordered sequence. Consequently, if called upon to spell or to write a word thus taught, such as pleasant, *e.g.*, he would be apt to reproduce it (in accordance with his prepotent phonetic memory of it) in some such form as "plezunt." The habit of "bad spelling" thus induced could only be corrected by the laborious process of (1) learning to ignore the already acquired association of sound with form; (2) learning the several component letters and the order in which they are placed; (3) learning that such letters, so arranged, are designated by the same sound which he had previously been taught to associate with the vaguely memorised word-whole.

It would therefore appear to save much time and labour in the end were the child, from the beginning of his reading, taught the spelling as well as the correct pronunciation of each word as he meets with it. To do this without needless strain and effort, he must perceive each of its several letters clearly and easily. Attention should therefore be given to ensuring for him the easy "legibility of letters as seen in context," even more than to the early recognition of word-wholes and phrase-wholes. This latter process may safely be left to take care of itself. The recognition of the word as a whole will speedily be gained unconsciously, through practice, by constantly recurrent acquaintance with its general form and shape; and in proportion as the individual's powers of observation undergo development and training.

### THE REORGANISATION OF SECONDARY EDUCATION IN NEW SOUTH WALES.

By GEORGE MACKANESS, M.A.,

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**A**BOUT seven years ago State primary education in New South Wales was thoroughly reorganised in accordance with modern ideas of development, and a new syllabus of studies issued. It was not until the year 1911, however, that State secondary education was placed on anything like a proper basis, new "Courses of Study for High Schools" having been issued, several new high schools created, continuation schools, both day and evening, either inaugurated or proposed, a new system of scholarships and bursaries initiated, and a revised scheme of salaries for high school masters and mistresses gazetted. With 1911, then, began a new era in our higher education.

In addition to the matters enumerated above an inspector of secondary schools has been imported from Great Britain, Mr. W. J. Elliott having taken up his new work in January, 1912.

As a preliminary to any discussion of our secondary education, a word or two is necessary concerning the general educational system now in force in this State. With the exception of certain private schools, controlled either by corporations or various religious bodies, the whole of education is in the hands of the Minister for Public Instruction. The permanent head of the Department of Education, however, is Mr. Peter Board, Under Secretary and Director of Education, to whom is due both the organisation of primary education and this new scheme of secondary education.

At present there are in existence the following classes of schools:—

I. *Primary*.—(a) Provisional schools, with an enrolment of less than twenty pupils.

(b) Half-time schools, with an enrolment of less than ten pupils.

(c) House-to-house schools, taught by itinerant teachers.

(d) Public schools (divided into seven classes), with an enrolment of twenty or more pupils.

II. *Primary Schools with Secondary Classes*.—(a) Superior public schools; (b) district schools. These two classes will shortly be reorganised either as day continuation schools, with a special syllabus of studies, not yet issued, or as intermediate high schools, where the courses of study for the first two years of high-school work will be in operation.

III. *Continuation Schools*.—(a) Evening continuation schools of three types: commercial, artisan, and domestic science. These are already in existence in the city, suburbs, and large towns.

(b) Day continuation schools.

IV. *Secondary Schools*.—Under this heading are included all the high schools, in some of which several courses are in operation. Others, however, as the technical and agricultural high schools, have been established to give instruction in one particular course only.

The link between primary and secondary education is the *qualifying certificate*. At the end of the primary school course those pupils who so desire are examined for this certificate, which testifies to their fitness to enter upon a course of higher instruction. Possession of a qualifying certificate alone entitles a pupil to admission to a high school. The first examination for qualifying certificates was held in December, 1911. There were 13,000 candidates, their average age being about thirteen years.

Before admission to a high school is granted, the parent of the pupil is required to sign a declaration to the effect that he will keep his child at the high school for the full course of four years. For those pupils who do not wish for a high school education, day continuation schools, as already mentioned, are to be provided. It is a matter of regret, however, that the great majority of children, particularly in rural and industrial districts, leave school as soon as they attain the statutory age of fourteen years. The present Minister of Education—a Labour Government is now in power—recently threatened to make attendance at either day or evening continuation schools compulsory for at least two years after completing the primary school course. This, however, is by the way.

The courses of study for high schools in all cases provide for four years of continuous work, and are designed to furnish a preparation for various types of vocation:—

(1) *A general course*, leading to the university and to professional studies in higher institutions.

(2) *A commercial course*, for those who desire to enter on a business career.

(3) *A technical course*, leading to industrial pursuits.

(4) *A domestic science course*, qualifying for home management.

In each of these courses, however, provision is made for a compulsory group of studies, having themselves no immediate or direct bearing on vocational ends, but designed to provide for the common needs and the common training for well-educated citizenship. These subjects are English, literature, history, science, mathematics. English has been made the foundation of all secondary-school work, or, as the new syllabus puts it: "It is specially in the use of the mother tongue that the high school will exercise its highest influence upon the general training of the pupil." Outside of these studies, which form the common meeting-ground for all the students of the high school and to which about one half of the school time is devoted, there lies the field for the students' choice according to his individual aptitudes or his prospects of a future career. This choice is provided for by courses in ancient and modern languages, in science and mathematics, in manual and field work, in drawing, in economics and business principles and practice, and in domestic arts and science. The greater part of this more professional work is confined to the latter years of the course.

Two certificates are to be issued as the results of examinations, one, the "intermediate certificate," will make the successful termina-

tion of the second year's work, the other, the "leaving certificate," the successful completion of the four years' course. No pupil will be allowed to proceed from the second to the third year without having first obtained the intermediate certificate. The transition from the first to the second, and from the third to the fourth year is determined by the headmaster of the school upon the nature of the pupil's class record, and the result of the class tests applied during the year.

The nature of the certificates to be issued is worth a moment's consideration. They will bear upon their faces a statement of the subjects in which the student has shown a satisfactory degree of attainment, while the conditions governing their award are:—

That the pupil has regularly and diligently followed the courses of study for two or four years; that his conduct and character are reported as satisfactory; that he has passed the examination in at least four subjects of the course followed.

Previous to the introduction of these certificates, admission to the various faculties and schools of the University of Sydney was secured only by passing the matriculation examination, or the senior and junior public examinations—the equivalent of the "Locals" of Oxford and Cambridge Universities—in certain prescribed subjects. The University, however, has agreed to accept the leaving certificate as equivalent to matriculation, provided that the student has passed for the certificate in the subjects required by the faculty he intends entering.

It may be added that the University of Sydney has lent its hearty support to the new movement. The course of studies laid down in the majority of subjects has been approved of by the professor of that subject, while the occupant of the chair of mathematics, Prof. H. S. Carslaw, has himself written a "Memorandum on the Teaching of Elementary Mathematics," added as an appendix to the "Courses of Study for High Schools." In addition to the departmental officers and inspectors, four University professors, Profs. MacCallum, David, Carslaw, and Woodhouse, have seats upon the Board appointed to conduct the examinations for the certificates. Thus the new high school system has been securely linked up to the University.

The possession of a leaving certificate is also the chief qualification required for admission to the Teachers' Training College. We have no pupil teacher system in existence here, but a system of probationary studentship, leading to two years' training at the Teachers' College. Previously the probationary students were trained at the high schools and district schools.

Now, any candidate with a satisfactory leaving certificate will have an opportunity of entering the teaching profession, without further preliminary examination.

It is provided further in the regulations that in the case of certain students who propose to follow up specialised courses of study at higher educational institutions, they may be granted an additional year after obtaining the leaving certificate. Certain of the larger schools only will admit such students.

The question of scholarships and bursaries, as incentives to advanced study, is an important factor in the success or non-success of any scheme of secondary education. A very liberal scheme of scholarships and bursaries, or, as we prefer to call the latter, scholarships with grants, has been approved by the Minister for Education. At the first qualifying examination held in 1911 nearly a thousand scholarships, with and without grants, were awarded. The scholarships carry with them four years' free education in a high school, together with all necessary books and instruments. No fees, by the way, are charged in any of the high schools. About one-third of the scholarships carried grants in accordance with the following scale:—

For scholars living at home, £5 or £10 per annum, according to merit and parents' circumstances; for scholars residing away from home, £20 to £30 per annum. It is also proposed to increase these amounts paid to scholars by an additional £5 per annum for each year they remain at school. At the end of the four years' course a number of scholarships are awarded to the most successful candidates for the leaving certificate, and tenable at the University of Sydney.

According to a recent *Government Gazette*, high schools are to be classified either as First Class or Second Class, determined in the case of each school by a consideration of the following points:—

- (1) The number of pupils in attendance.
- (2) The number of pupils who pass forward to the leaving certificate standard;
- (3) The number of courses established in each school.

The question of staffing the high schools has been settled by appointing to each school

(a) *A Permanent Staff* consisting of (1) a headmaster; (2) a deputy headmaster; (3) masters of departments; (4) assistant-masters.

(b) *A Junior Staff*, consisting of junior teachers, usually ex-students of the Teachers' College, not appointed to the permanent staff, and subject to removal on becoming eligible for other appointments in the service.

Each high school is divided into departments (1) of English; (2) of mathematics; (3) of

classics; (4) of science; (5) of modern languages; (6) of commercial subjects, though in some of the smaller schools two departments are combined under one master. In the technical high schools classics are not taught.

The salaries paid are worth comparison with those paid in other lands. The list is as follows:—

#### BOYS' SCHOOLS—CLASS I.

##### *Permanent Staff.*

Headmaster, £500 to £600, by £30 increments.  
Deputy Headmaster, £40 in addition to salary as Master.

Mathematical Master	} £300 to £400, in £25 increments.
Classical Master	
Modern Language Master	
English Master	
Science Master	
Commercial Master	}
Assistant-masters, £200 to £300, in £25 increments.	

##### *Junior Staff.*

Assistants, £186 to £228, according to their standing in the service.

#### BOYS' SCHOOL—CLASS II.

Headmaster, £400 to £500.  
Deputy Headmaster, £25 in addition to salary as Master.

Masters of Departments, £300 to £350.  
Assistant-masters, £200 to £300.

##### *Junior Staff.*

£168 to £192.

#### GIRLS' SCHOOL—CLASS I.

Headmistress, £350 to £450.  
Deputy Headmistress, £30 in addition.  
Mistresses of Departments, £250 to £300.  
Assistant-mistresses, £200 to £250.  
Junior Staff, £144 to £180.

#### GIRLS' SCHOOL—CLASS II.

Headmistress, £300 to £350.  
Deputy Headmistress, £15 additional to other salary.  
Mistresses of Departments, £200 to £250.  
Junior Staff, £144 to £180.

## THE CALL OF THE "LAND"—IN ASSOCIATION WITH THE EDUCATION AND TRAINING OF THE UNFIT.

By ALBERT E. LEWIS,

Headmaster, Lingfield Colony School for Epileptics.

MUCH has been said and written of late concerning the depopulation of the villages, and the neglect of encouraging employment on the land, as a means of absorbing some of the surplus labour in congested trades. Whilst the subject is prominently before the public, and the report of a Royal Commission on the Unfit is still awaiting legislative treatment, I desire to bring before the readers of THE SCHOOL WORLD what is being done in a school for epileptic children, where the train-

ing is of a character calculated to stimulate intelligence in a particular and peculiar type of brain, with a definite aim of fitting the child for employment in agricultural and gardening pursuits.

It is well, before proceeding, to consider the kind of "material" of which such an institution is composed. In the epileptic we have a type of the "unfit" child which has many points separating it from all others, and the sad malady from which it suffers renders it a difficult subject for the educationist to deal with, as the capabilities of healthy brain power are found to vary very much in each child. The usual course of psychological development observed in the normal child does not in many cases apply to the epileptic, and he has

which follow closely the path of being sensible in opposition to the sentimental. Having also in view the fact that the mentality of a group of epileptic children ranges from mental deficiency approaching imbecility to abnormal development, which has to be retarded, it will be seen at once that for such children the ordinary school method and schemes could not be applied successfully.

The school which I wish to describe—the largest and first of its kind recognised by the Board of Education—has passed through many methods of treatment, some largely mental, others industrial, but all experimental, with the view of the teacher acquiring a trustworthy estimate of the disposition and brain development of each child. For a year past



FIG. 1.—Early spring—preparing for "seed-time."

to be regarded as a special object of child study throughout his training. The various stages in the growth of intellect associated with age, and culminating in the power of thought—with its definite unfolding of conception, judgment, and reasoning—have so many variations from the scientific principles of study that the teacher must, in order to appreciate fully and apply his teaching method without danger, study each of his pupils closely and individually at every stage.

Blended with this there is an animal tendency to viciousness associated with the disease, and, in order to control and encourage healthy thought in such subjects, a teacher needs not only to exercise great patience, but also a firm but sympathetic mind and manner,

the school has now settled down to a scheme embracing the objects mentioned, one of which regards the epileptic as a "child of nature," who should for the sake of his health be much in the open air, and his education followed up so far as convenient under outdoor conditions, associated with the recognisable capabilities of his reasoning powers for development and occupation.

As preparation for employment on the land is the definite end sought for these children, and as the mind, in order to prevent that brooding self-consciousness which brings the hysterical state, must be healthily employed during such occupations (many of which can easily become mechanical and so retard development), such a scheme brings into prac-

tice a group of subjects having definite bearing on garden and farm work, and the working brain makes progress with the working hand.

The main subjects of study are elementary agriculture, botany, nature study, and natural history, taught not with text-books, but entirely on heuristic lines, the information being gathered practically through the observant eye under able systematic guidance. The various tillage operations, for instance, will thus be more to the child than so much mechanical labour, for even the simplest form of digging is shown to have its effect on his reasoning powers. A difficulty usually occurs in deciding on the best occupation for children of defective intellect. It is very important for the epileptic that the work in hand should be

occupation, making up a scheme of instruction definitely confining all the training of the children to a preparation for interested and intelligent work.

A study of natural history will be the outcome of careful observation made on local animals, birds, reptiles, and insect life, farm stock, and pests of the soil. Botany instruction is used in association with practical agriculture lessons to encourage in the child the exercise of reasoning powers concerning the various functions of plant-life and the composition of soils. Nature study closely follows the development of wild life in the woods, fields, and lanes; the wild flowers, the birds, all receive careful study, and their development is recorded.



FIG. 2.—July—a corner in the "Nature Study" garden.

always progressively educational, unfolding the thoughts of the mind in orderly and logical sequence. This point is of the greatest importance to those who have to select occupations for such schools.

The expert of the Board of Education says:—"The epileptic must be considered as a child of nature; his education and after-work must come directly from this source, and, as far as possible, during his years of school-life his training must take place in the open air." For some time previous to this decision every child, boy and girl, in the Lingfield School had been instructed in practical gardening for an hour each day, but this now forms but a link in a chain of correlated mental observation, visual expression, and manual

Reading, composition, arithmetic, literature are coupled up so as to accord with the controlling idea. Reading is taught from sheets and books printed by the class teachers bearing on the class subjects. Composition is the verbal and written expression of the results of observation. Arithmetic takes the form of practical marketing in the gardens—weighing, measuring, and pricing, and is coupled with the actual gathering of crops. Literature consists of a careful following of the poets in those simply understood gems of English composition relating to the seasons, the birds, flowers, and other wonders of nature.

The visual expression of natural objects by means of the brush is much encouraged. The teaching of art, however, is not the aim. It is

definitely drawing with the brush the impression present in the brain after observation, which has the effect of giving a child the power of producing a verbal or written description. All such work with the brush is executed so far as possible in the open air, and is taken from natural living specimens. This is found to increase the power and habit of close observation, and since the present view of education is to instruct "through the eye," the educational side of this brush study is obvious.

Those boys who are privileged to unite carpentry with their school training receive what instruction can be readily given by general farm and garden repairs, such as circumstances permit.

In order to facilitate the successful working of such a curriculum, the need of a museum was felt. The usual town school nature-study museum, which is in the school hall, and consists of pot plants, cut flowers, stuffed and preserved specimens of animal and bird life, &c., has in this case given place to an outdoor natural garden and museum with living objects for study.

A piece of ground in close proximity to the school gardens has been laid out naturally. It is bounded by hedges and ditches, in which every suitable specimen of hedge tree or plant is being included, and the garden itself is rapidly filling with English wild flowers, planted so far as possible in situations resembling their natural haunts. As time goes on it is hoped to make this a fairly complete collection of English wild flowers by importing specimens not found in the locality.

Tanks let into the ground and surrounded in a way to give a natural appearance contain some specimens of water reptiles and insects, fish, and aquatic plants; whilst one corner furnishes accommodation for a rabbit warren, and also a range of hutches and cages, where specimens of British wild animals (as acquired) are kept and looked after by the children, as they thus have a good chance of careful and continued observation of such creatures as exist in a wild state around them. An aviary of British birds is a possible extension in the near future. Such a collection of natural specimens, animal and vegetable, living and growing under the eyes of the children, without the necessity of perhaps a fruitless search, is an invaluable aid to the teacher.

As each flower appears it is the subject of nature study, botanical analysis, brush study, literature, and composition, thus linking up action, observation, speech, expression in colour, and poetic allusion in one chain of logical education directly obtained from that which is natural. The section devoted to animals, fishes, insect life, and reptiles is sub-

jected to a similar exhaustive study; and it is hoped that such a love of nature, such a thorough understanding of vegetable growth, feeding, and attention, combined with a first-hand knowledge of the enemies and friends of plant-life, and simple yet carefully thought out tillage operations on the soil, will help to train to good practical value mental and physical fitness for a useful life in agricultural and gardening occupations, and so preserve peculiar children, such as epileptics are, from becoming dull-witted through constant and tedious manual occupation.

### NEEDLEWORK IN A SECONDARY SCHOOL.

By HILDA M. SKINNER,

Roan School for Girls, Greenwich.

IT is interesting to look back on seven years' work, and to see how a subject grows. I have had a free hand in the organisation of needlework in a large secondary school in London during this period, and no two years have been the same, but as time goes on the changes tend to be less fundamental. The lines on which the subject is worked are now fairly well established.

The extent of the needlework done in large schools must vary enormously. The regular school course is common to all, but everything beyond that may well be peculiar to any special type of school. The class for girls qualifying for "bursaries" must be unknown in many schools. Again, embroidery classes in the upper school may, or may not, be usual. At any rate, it is the regular school course that is most important. It will vary in length as a course, and it is here that the need for organisation arises.

There are three broad principles that clear the ground a good deal. All garments fall into one of four great classes, according to their build. There is first the straight line or bag type; then the tunic type, embracing all garments that hang from the shoulders; next the knicker type; and last of all, the skirt type, including all garments that hang from the waist. These four must be so well distributed through the syllabus that a girl passing through the school will become familiar with every class. A second principle is that, while it is good to have a variety of garments of the same type made in the same class, it is not advisable to mix the types. Thirdly, the girls should be made to do everything for themselves — scale-drawing, pattern-making, cutting-out, and the garment itself.

The first type is clearly suited for the first and second year. Though a handkerchief or pillow case is very simple, it can be made

quite important, and great stress can be laid on the size, and on the initials. These initials, which may be worked in the corner of the handkerchief or bag, are sometimes the occasion of great heart-searchings. I remember, some years ago now, asking a little girl whose initials she was going to put in the centre of a brush and comb bag; I asked her what her mother's initials were. In a moment I saw that this suggestion did not meet with approval. Presently she said, "My mother's in mourning; I think I'll put my own." The bag was a pink one.

The paper work in connection with these things can be treated quite seriously too, if it is possible for little girls of eight and nine to be serious, for I find them full of fun. Girls of from ten to twelve in their third and fourth years of needlework can manage easy specimens of the tunic type—pinafores, petticoats, and very simple nightgowns with no yoke. This little petticoat (Figs. 1 and 2), with its



FIG. 1.

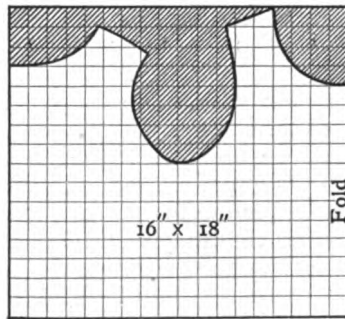


FIG. 2.

panel down the front, and with from two to two and a half widths of material in the skirt, is very popular. If a form of thirty girls is going to make this petticoat, and most are going to buy them for themselves, it is rather a good plan to divide the girls up into three groups according to size; rapidly create three patterns in paper, to fit a representative of each group, put all three on the large chequered blackboard, and let each girl make a scale-drawing of the pattern that belongs to her group.

All scale-drawings in the lower school are done to the scale of 1 in. : 4 in.; in the middle school, 1 in. : 10 in. In the fifth year, the knicker type fits in well. Practice in easy machining prepares the way for the next year's work, when the machines are freely used. Drawers and gymnastic knickers are simple, and there is time to get in a good deal of practice in mending and darning. This is good, because the girls have reached an age when they can be of use at home if they have a little knowledge of darning and patching. The last year's needlework, which may well

come in the upper fourth, lends itself to the making of more difficult garments of the tunic and skirt type, shirt blouses of cream delaine for gymnastics, dressing gowns, nightgowns, science and cooking overalls, and camisoles. Satisfactory "finish" in these things can only be acquired after much practice. The curved bands round the neck of a kimono dressing-gown are not easy to set or machine.

Neither knitting nor crochet should appear in the regular school course. Both of these accomplishments can be acquired by carefully following the minute directions of *Weldon*.

I regard the year's course given to girls qualifying for "bursaries" as a time of revision, when they gather up all the knowledge, theoretical and practical, that they have gained in previous years. The headmistress has to certify that they have a "reasonable" knowledge of needlework, so I try to make them look at the subject from an outside point of view, and let them see the stages in the development of the school syllabus. It is well to keep them, so to speak, "detached" in their point of view, and in no wise to let them lose themselves in the school syllabus again or in any other syllabus.

Most successful work has been done this term by twenty-four of these girls. They have made two copies of scale-drawings of all the garments in every-day use, one of which they have stuck on to the left-hand side of a note-book, the other on to the outside of an envelope about 10 in. by 8 in. Side by side with the diagram they have drawn a picture of the finished garment, and inside they have put a full-sized paper pattern of the garment itself. In their note-books they have discussed the build of the different garments, and it has taught them to reason, and think "in widths," if such a thing is possible! Every pattern that is enlarged by these girls is, whenever possible, fitted on to the girl herself, and slightly adapted if necessary. In this way they feel that in their envelopes are real patterns, and not ghosts of patterns, which would fail if put to the test. Much practical needlework can be interspersed among all this paper work, but let it be remembered that these girls are supposed to have passed through every stage in the school syllabus.

Not the least important part of the work may come in the upper school, in a fifth form possibly, where girls are not working for any examinations, or where they have dropped mathematics. Here such subjects as gardening and embroidery greatly add to the pleasures of school life. All embroidery should be based on original design—no such grand word as "design" need be used if the girls are diffident. Give them a few buttercups



or sprigs of heather, and help them to make a little brushwork study of the very simplest kind; then get them to suggest some simple arrangement. Do not be too critical. With regard to the embroidery itself, a high standard of finish should be demanded, since the whole beauty lies in the perfection of form and colour.

A good deal of influence should be brought to bear when there is a tendency to choose hopeless pieces of work and crude colours. I always do the buying myself, however much the girls may have to say in deciding the details. They do not buy good enough materials when they get them themselves, and yet they never find I charge exorbitantly for the best linens, simply because many stock collars, Peter Pan collars, cake mats, and sofa cushions can be cut from a yard or two of material. The embroidery lesson is one which is very much enjoyed, and one girl at least after leaving school has thanked me for what I have taught her in that class.

Needlework is, indeed, a delightful subject to teach. It can be made so human, and there need be no despairing even on the part of the least practical girl, because no one need say, "You must hem well, and until you do you shan't do anything nice and pretty." It is a very difficult thing to hem well, and we cannot all expect to hem as well as the needlework mistresses themselves!

### THE HISTORICAL METHOD IN SCIENCE TEACHING.<sup>1</sup>

By W. D. EGGAR, M.A.  
Eton College.

**H**OW do we treat a branch of physics historically? I believe that there are several ways of teaching history; and I seem to remember that Prof. F<sub>1</sub> used to be regarded as an exponent of the true scientific method, the main features of which were strict accuracy and intolerance of the views of Prof. F<sub>2</sub>, whose method was characterised by picturesque special pleading and intolerance of the views of Prof. F<sub>1</sub>. The last history book that I have looked at is that of Messrs. Fletcher and Kipling, and I gather that picturesqueness is a valuable feature, and that scope may be allowed for the play of the imagination.

Thus, taking the subject of electricity in historical order, we might say that Thales of Miletus rubbed a piece of electron, or amber, on the sleeve of his chiton or tunic, and found that it attracted small fragments of papyrus. Then, of course, we might digress upon the Middle Ages and the revival of learning that

followed upon the Turks taking Constantinople, and so to the spacious days of Queen Elizabeth, and her physician, Dr. Gilbert, of Colchester. I can imagine this kind of thing being made extremely interesting, to me at least; but I am not good at it. The boys find it dull, and they do not learn much electricity. A friend of mine reverses the order, and begins with the other kind of electron, which, when jerked, sends a shiver along a Faraday tube. I cannot say I approve of this way of beginning the subject. I gather that Dr. Nunn is in agreement with Clerk Maxwell when he claims for science that it is one of the humanities. Maxwell's view was that only the humanities, or, as he said, history about people, formed a suitable pabulum for the immature mind. But since Maxwell said this, science has come into much closer touch with human life, and electricity is literally at all of our doors.

It may quite fairly be argued that the natural, the human way of beginning electricity is to begin with the electric current, and its various applications to our common existence. The history which Maxwell thought so necessary for human interest is here of secondary importance for most boys. Often boys are interested in the history of a discovery or of an invention, and the difference between the two things sometimes forms a useful subject of discussion. We have probably most of us heard of the boy who asked whether Dr. Cook's North Pole was a discovery or an invention. Under which category would you put the electric current? It is rather a nice point. However, most boys are inclined to accept it, and work with it as an established fact, like a bicycle.

We are in search of human interest. There may be a danger lest we should put too narrow a meaning to the word "human." To take only the two subdivisions of the race with which we are mainly concerned, there is the human boy and the human "beak"—I should perhaps impose a further limitation, and say the human public school science-master; and what is interesting to the latter—after all, only a very small section of the community—is not necessarily interesting to the former. We have great hopes of obtaining a better insight into the working of the infant mind by means of psychological experiments; but I do not think that, as yet, any sufficiently definite results have been obtained to help us much with boys of 14-17, and we must have recourse to the common or garden flower called sympathy. What used to interest us most when we were boys? With some of us it means going back a long way. I was not precisely a chicken when I first inflicted a paper on this

<sup>1</sup> A paper read at the annual meeting of the Association of Science-masters in Public Schools, on January 8th.

society, just twelve years ago. I have a very clear remembrance of that time because of what was to me an interesting event of a domestic nature, resulting in a solid fact of the present day weighing at least 6 stone. History of this kind can be of no interest to this meeting, and I merely mention it to show that as we grow older we may be fortunate enough to get forcible reminders of what we used to be like when we were boys.

What do I remember of school? I never did any science at school, except one term when I went to lectures on astronomy one hour a week. So my experiences are not of much value: but I remember well my delight in coming to the motion of a particle under a central force  $\mu/r^2$ , and the verification of Kepler's laws. Mechanics up to that point had been merely a continuation of Euclid: I could reproduce the bookwork and work out the stock examples without understanding and without enthusiasm.

Another great eye-opener for me was the wave theory of light, but it came so much later that I cannot say what effect it would have produced on me at seventeen; I am inclined to think that I should have been ready for it then. There must be many here who can give much more valuable accounts of their schooldays than I can. I have mentioned my experience because I believe that efforts to reconstruct the past are helpful in our dealings with the present boy.

And now to come back to the historical method as applied to the teaching of mechanics. Here we are on firm ground. We can begin with Archimedes, and go on to Stevinus and Galileo and Pascal, and all the time we shall be treating the subject experimentally. There is no need to be pedantic about it. Screwjacks, Weston's pulleys, speedometers, and such-like may be anachronisms; so are fountain-pens. We can introduce them as inventions and not as discoveries. But all this experimental work should lead up to Kepler and Newton. Unless that stage is reached, is it possible that a boy can have a proper conception of mechanics? All the preliminary experimental work is like the corresponding work in geometry. A boy of seventeen should be capable of appreciating a rigid geometrical proof, and equally of understanding the supreme application of mathematics to physics which forms the substance of the Principia. Unless he acquires enough mathematics to attain to this he has not emerged from the Middle Ages. There has been nothing like it before or since. And yet how few, except mathematical specialists, reach this plateau; and if a boy does not reach it during his schooldays, is he likely to do so after-

wards? Putting it on patriotic grounds we might expect Englishmen to know something more about Newton than the stock anecdote.

An educated man usually knows something about Shakespeare's plays. His deer-stealing and his will, leaving his second-best bed to his wife, are of minor importance. Newton is the one man comparable with Shakespeare in English history. He is not a mythical figure. Nobody has suggested that Clarendon or Samuel Pepys or Christopher Wren wrote the Principia. Yet to most boys Newton is the man on whose head the apple fell. We all, boys included, like these little stories. They serve their purpose. As we grow older, we can appreciate the history of the hard work and the disappointments that preceded the discovery. But the historical method, whatever it may be—and I confess I am not yet very clear about that—will have been a failure if it does not bring out the true significance of the discovery itself.

### THE VALUE OF THE HISTORICAL SEQUENCE IN TEACHING CHEMISTRY.<sup>1</sup>

By THOMAS J. KIRKLAND, B.Sc.  
The King's School, Ely.

THE problem that is set before us is to decide how far it is advisable to introduce the views and work of the past in our present teaching of chemistry. We cannot, of course, be entirely independent of the past, but ought we systematically to follow the historical sequence? This paper is an attempt to mention some of the advantages which seem to result when such a course is taken; it does not claim to set out all the advantages, or to put forward the disadvantages.

In the first place, then, the historical order would appear to be the logical order, because it develops the subject in a way suitable to the mind of a growing boy. As Sir William Ramsay says in his introductory note to Mr. Ludlam's "Outlines of Inorganic Chemistry," "The history of the man is in some measure the history of the race; and the historical method of developing chemistry is evidently the method which corresponds with the growth of intelligence of the boy."

It is only too easy to forget that the intelligence of the boy is growing, and as this is so, it is necessary to adapt that with which we desire to clothe his mind, just as the size of the garments with which his body is clothed is adapted. He must be led step by step from that which is quite simple to that which is

<sup>1</sup> A paper read at the meeting of the Association of Science-masters in Public Schools, on January 9th.

more complex. In order that this may be done, we must not only teach the meaning of synthesis, we ourselves must also be synthetic in our teaching. It is for this reason that the order of discovery, the order by which we have travelled to our present knowledge, is worthy of careful consideration. For each part of the subject depends to some extent on that which in point of time preceded it, and it is only when the old theories have been explained, and their fallacies pointed out, that the more modern ideas can be fully understood.

To take an example: in what better way could we make clear the hydrogen theory of acids than by first explaining how the old oxygen theory came to be suggested, and then describing those famous experiments which Sir Humphry Davy and his brother carried out in 1810, in order to discover whether or not oxymuriatic acid did really contain oxygen?

By following the historical order in this way, the boy's mind is trained to understand where a theory may break down. He gets into the habit of looking for the weak places, and inquiring whether or not the theory is really supported by the facts. He learns to make his theories fit the facts, and not, as is so often done, to make the facts fit the theories.

Then, secondly, the consideration of the historical order is important, because it can so easily be made to stimulate interest, and this, of course, should be one of the main objects of the teacher. It is not always possible for the lesson itself to be interesting, but it should always be possible to present it in such a way that the boy's curiosity is aroused, and his interest awakened. It has been said that to teach one who has no curiosity to learn is, as it were, to sow a field without ploughing it. When the interest is aroused, the intellect is stimulated. A boy will become quite enthusiastic on the subject of combustion if he has been led to its consideration through the historical path of "phlogiston." He will be curious to learn the reasons why this theory cannot be accepted to-day. He will listen attentively whilst he is told how the difficulty of accounting for the fact that certain substances weigh more after combustion than they do before was overcome by the argument that phlogiston is repelled by the force of gravity; and how this argument was supported by an experiment in which two lead balls of the same size and weight were put in a vessel containing water, and then to one of the balls was attached a piece of cork large enough to make the whole rise to the surface of the water. The ball plus the cork clearly weighed more than the ball alone, yet the former rose to the surface,

whilst the latter remained at the bottom of the vessel. The interest of the boy will also be roused when he is told how those who believed in the phlogiston theory accounted for the fact that when a lighted candle was shut up in a bottle it was soon extinguished, by saying that it was because the phlogiston could not escape.

But it is especially in physical chemistry, where it is often difficult to keep the class interested, and to prevent it from becoming bored—partly perhaps because the lesson cannot be brightened by practical demonstrations, and partly because a boy's mind is slow to grasp the real importance of laws and principles—that a few touches of history may just make all the difference. The men we talk about may have been dead for years, but their memories often make the subject live as nothing else can. If we start the subject of diffusion by coldly endeavouring to explain the meaning of Graham's law, the interest of the class is not aroused in the same way as it would be if we told how that Döbereiner found out by accident that water rose in a jar of hydrogen which had been inverted in a vessel containing the liquid, owing to a slight crack in the jar, and how that Graham supplied the explanation of this discovery.

In dealing with such subjects as the atomic theory, molecular weights, the periodic classification, &c., it may be difficult to make these things interesting in themselves, but if they are connected with the great men who have shed such light upon them, the difficulty is to a large extent removed. Boys are always interested in hearing about great men, no matter in what direction their greatness lies; it is for this reason that facts and theories connected with these men arouse more interest and stimulate the class better than those not so connected.

Then, thirdly, the historical sequence is important, because if it does really stimulate interest it will at the same time impress the subject on the boy's mind, and so aid his memory, a thing which no one who is responsible for education can afford to neglect. So if, by paying attention to the historical aspect in teaching chemistry, we can arouse our pupils' interest and so cultivate habits of memory, we are at least fulfilling one of the chief duties of our office. It has been said there is a double excellence of memory, "to learn easily, and to retain faithfully." As Locke puts it: "The business of education is not, as I think, to make them perfect in any one of the sciences, but so to open and dispose their minds as may best make them capable of any when they shall apply themselves to it."

If a boy is to remember a thing there are, generally speaking, two ways by which this can be accomplished. Either that which it is desired to commit to memory must be repeated time after time, in which case the impression is made a little deeper at each repetition—repetition, it has been said, is the father and mother of memory—or the thing to be remembered must be such that it arouses great interest. In this case the impression made is deeper, and the statement does not need repeating to the same extent.

Where a boy is made to learn a list of methods by which some gas or other can be prepared, there is always the possible danger that the process will be merely mechanical, that the facts, as it were, will be put in his memory, and will shortly evaporate without acting on his mind. In such a case the memory may be strained, but it is not trained, as it is if the facts cause the boy to be interested, so that he thinks about them not only in the class-room but also outside, with the result that they cause a reaction to take place in his mind.

Then, lastly, in addition to these advantages to the boy, there are also advantages to the teacher. For by following the historical sequence, we are in some measure restrained from attempting to cover too much ground in a lesson. The mind of the average boy is not so developed that it can take in very much at a time, and the teacher is often tempted to forget this. If we take the subject and deal with it from the historical point of view, we must naturally dwell longer on it than we should probably do otherwise; it just keeps us from going too fast, although it offers no real excuse for wasting time. Then, again, the historical sequence enables the teacher to have the lesson clear in his own mind, which is, of course, essential if he is to inspire his pupils, and if he is to pass from stage to stage easily and without awkwardness and hesitation.

#### PERSONAL PARAGRAPHS.

**M**R. BERNARD WILSON, senior master at Sedbergh School, died on January 15th. He was educated at Rossall and at Emmanuel College, Cambridge, of which he was a scholar, obtaining a first class in the classical tripos of 1876.

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MR. C. W. A. TAIT, who died on January 17th, had been for thirty-one years a master at Clifton. From Rugby he went to Queen's College, Oxford; he there obtained second classes in the two classical schools. At Clifton he became a housemaster and senior master on the modern side.

THE death is announced of Rev. R. J. W. Davison, for twenty-three years headmaster of Ilminster Grammar School. Mr. Davison graduated at Cambridge in 1884, and was for five years a master at Bishop Vesey's Grammar School, Sutton Coldfield, and for seven years at Macclesfield Grammar School.

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MR. J. S. BRIDGES has been appointed to be chief educational officer and director of education to the Willesden Education Committee. Mr. Bridges graduated in science at the University of London, 1895, was called to the Bar in 1910, and took his degree as doctor of laws in 1911. He was formerly professor of biology at the City of London College, and a master at Millfield's Science School, Clapton, and is now director of education and organising inspector at Walthamstow.

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MR. S. M. TOYNE, a master at Haileybury, has been appointed headmaster of St. Peter's School, York. Mr. Toyne was educated at Haileybury and Hertford College, Oxford, being an exhibitor of both colleges. He took a third class in classical mods. and a second class in history. Before returning to Haileybury as a master in 1906, he held a mastership at Llandovery College.

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THE headmistress of the Jews' Free School, Miss Amy Marks, has been appointed one of H.M. Inspectors of Schools.

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ON January 1st, Mr. Arthur Cockshott, for nearly thirty years a master at Eton, died at Cheltenham at the age of seventy-one. Mr. Cockshott was fourth wrangler in 1864, was elected a fellow of his college, Trinity, in 1866, and was for some years examiner for the mathematical tripos; he was the author of several text-books in mathematics. He was Hon. Colonel of the 1st Bucks Royal Volunteer Corps and one of the earliest recipients of the volunteer decoration.

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MR. E. W. SMALL, formerly director of education to the Derbyshire Education Committee, has been appointed chief examiner to the Minor Scholarships Committee of the Junior Scholarships Board. Mr. Small is a native of Nottingham, was educated at the Nottingham High School, the Royal College of Science, and Christ's College, Cambridge. He is a graduate of both Cambridge and London, was formerly a Cambridge University Extension lecturer, a master at Nottingham High School and a lecturer at University College, Nottingham.

THE retiring president of the Society of French Teachers in England is M. Perret, whose services to the society have now extended over many years. He is a man of considerable driving power and a very hard worker; he teaches French at the Latymer Upper School and at the City of London College, both in the day school and the evening classes, and is well known as an examiner for various public bodies.

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MISS AGNES DE SELINCOURT has been appointed mistress of Westfield College in succession to Miss Maynard, who is to retire at the close of the present session. Miss de Selincourt was educated at Notting Hill High School and at Girton College, Cambridge, where she took a first class in the mediæval and modern languages tripos in 1874. She has since been to India, where she took part in the foundation of the settlement for university women in Bombay, and spent some time in organising educational work there and in Allahabad. She has recently been connected with the Student Christian movement in England.

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AFTER the educational meetings in January and the discussions they provoked, *The Times* came to the conclusion that, "The truth is, that what gives the study of any subject, whether of the humanities, of natural knowledge, or of living languages, its educational value is much more the method and spirit in which it is pursued than the subject-matter itself. If it enlarges the mind and refines the character, it is doing its proper work, and there is no higher or better work that it can do."

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At the dinner of the old boys of King's College School the headmaster, Mr. H. L. Rogers, replying to the toast of "King's College School," referred to the changes that were being made, and said that the old spirit and the old life continued. If he were asked what that old spirit was he would say that it was the spirit which had made of their chairman the greatest living authority on Burma, and Skeat the greatest authority on the English language; the spirit that had brought McKenna to the Cabinet, and Webster to the Lord Chief Justiceship of England. These men were boys at the school when it was in those buildings in the Strand now about to be vacated by Strand School, and recently described by another "old boy" as "The Cellars in the Strand."

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A NEW and popular headmaster has appeared in London; his popularity is extending to a

wider public than that of most headmasters, but it is not likely to be so lasting, for he amuses more than he educates. He is at times a pathetic figure, and in his troubles, when "he has lost his swing," neither his rod nor his staff can comfort him. His chief support reminds one forcibly of that school porter who, when a visitor asked who determined the seats in the school chapel, replied, "Me and the Headmaster." Schoolmasters who want to be amused and to see the depths of incompetency to which a clerical headmaster can sink should go to see their new colleague in the person of Mr. Cyril Maude at the Playhouse.

ONLOOKER.

### SCHOOL RECORDS.<sup>1</sup>

ANY suggestion to impose upon teachers additional duties of a clerical nature is not likely to meet with approval, unless it can be shown that real advantages will result from such additional work; and the education sub-committee only ventures to put forward tentatively the scheme outlined in this report because it considers that, while the work involved will not necessarily be very great, the advantages arising from it, both to teachers and pupils, may be very great indeed.

The school record which the sub-committee has in view would be a document giving, as briefly as possible, an estimate of the intellectual powers and moral qualities of a boy as he leaves school, based upon the observations of the teachers or groups of teachers who have been most closely in touch with him and his work. It need not be a bulky document in book form, such as are the records at present being kept in some schools, which consists of a continuous series of monthly, or even weekly, reports. Such a record the sub-committee regards as combining the maximum of labour with the minimum of profit, since a huge mass of detail is necessarily unintelligible to an outside observer, while the points that he wishes to know, what the boy is like and what he is fit for, are nowhere clearly stated. The record would naturally include a statement of any outstanding achievements, and, perhaps, also a duplicate of the periodical reports submitted to parents; but even this is unnecessary, and might be dispensed with where there are no means of having such duplicate copies easily transcribed. In short, it is contemplated that the school record will afford a basis for the testimonial given to a boy when he leaves; but this testimonial will differ in several important particulars from that at present given to applicants; it would be prepared as a matter of course for every boy, and not merely for those that might chance to ask for it; it would not be an extempore effusion, but a carefully prepared and reasoned judgment; it would reflect, not merely the opinion of the headmaster who signs it—how few headmasters there are who could give, from their own knowledge, an opinion on every boy in their school!—but it would be understood to represent the

<sup>1</sup> From a report of the Education Sub-committee of the Association of Assistant-masters, published in the annual report of the association, 1913.

consensus of opinion of those who are in the best position to judge.

The sub-committee freely admits that the need for such a form of record is scarcely felt as yet, and that the authority which it would carry would at present scarcely compensate for the labour of preparing it; but it seems that the outcome of certain recent tendencies in education will be to make such a record not only valued, but indispensable.

In the first place, the world is beginning to realise the futility of judging the capabilities of human beings entirely by the results of a single written examination. To schoolmasters the fallacy of examination results has long been apparent; and it is a most hopeful sign that even in the correspondence columns of newspapers the question is beginning to be asked, why it is that the boys who do worst in school do not do worst in after life. Moreover, there are indications that the long domination of written examinations as the sole test for admission to the Civil Service is drawing to a close; the suggestion is already mooted that some kind of guarantee of fitness should be required before a candidate is allowed to sit for the examination.

If, then, the test of the external examination is to be relegated to a subordinate position, it would seem that the only thing to supplement it would be the judgment of the schoolmaster. Now, few would deny that the labour involved in the preparation of a record for every pupil would be a very reasonable price to pay for freedom from the cramping fetters of external examinations; but no one can imagine that that freedom can be obtained unless the price is paid for it. The system of external examinations cannot be materially modified, unless teachers are in a position to offer something really efficient in its place, something more than a perfunctory report, based on more or less hazy recollections, and composed when the pupil is on the point of leaving. The report must be a reasoned and deliberate judgment, founded on a series of recorded observations, and reflecting the opinions of as many independent witnesses as possible. The claim is sometimes advanced by teachers that, even without such a series of observations, they can give a tolerably accurate estimate of the ability and character of any boy who has passed through their classes; the claim may be, in some cases, justified; but the average man will find it necessary to have some definite material to work upon, before he can pass an authoritative judgment.

In the second place, it has always been one of the aims of our association to vindicate for teachers the status of members of a learned profession; and a considerable step will have been taken towards the attainment of this aim when it is recognised that a schoolmaster is in as good a position to give a certificate of intellectual and moral fitness as a family doctor is to give a certificate of health, and when the one certificate is as readily accepted as the other is to-day.

Before offering suggestions as to the manner in which such a record as is contemplated might be compiled, and the form which it might ultimately take, the sub-committee collated the experience of

several members who have had to keep records in one or other of the various forms at present in use. In the light of this experience, it considers that there are grave objections to the method of compiling the record from time to time in a book, which remains in the custody of the pupil. Such a revelation of the machinery of judgment tends to produce self-consciousness in a boy, and from self-consciousness to priggishness is a narrow step. Again, it is unjust that a boy of sixteen should find all his childish lapses from virtue brought up against him when he leaves school; much of the earlier part of his record may be conveniently ignored; and, finally, the most valuable part of a teacher's impressions of a boy are precisely those that he would never think of putting down in black and white for the casual inspection of friends and relatives.

For these reasons the sub-committee recommends that the record from which the ultimate testimonial is to be compiled should be entered in a private book, kept locked, if necessary, so that criticism may be as free as possible. The record for each boy should be brought up to date at least once a year by some master who has been closely connected with him and his work, and should include an estimate of his mental powers and moral qualities, together with a note as to any special circumstances that have a bearing on his character, for example, home influences; and the final judgment passed upon him when he leaves school should represent a consensus of the opinion of all who have had most to do with him. Of course, this judgment must sometimes be unflattering; but if schoolmasters shrink from attaching the appropriate label to the cheat, the shirker, and the Philistine, they had better abandon the idea of estimating character altogether. It is one of the weaknesses of the present system that it is difficult, when asked point-blank for a testimonial, to avoid giving a meaningless collection of compliments; but if a record were made for each boy as a piece of school routine, the difficulty would vanish, and the very heavy responsibility of issuing a condemnatory report would not rest on any individual master.

What, then, are the special characteristics that the teacher should note in his annual criticism? It may be admitted that few boys have any special ideals, or show any special aptitudes, at any rate until they reach the age of, say, fourteen; still, there are some qualities that can be noted in quite a young boy, such as honesty, perseverance, common sense, moral courage; others emerge later, such as independence, orderliness, social feeling, power of leadership, self-control; while among intellectual qualities might be mentioned alertness, originality, concentration, memory, expression, and deductive power. It is not, of course, suggested that the master should construct a sort of phrenological chart for each of his pupils, assessing his mental and moral equipment on a scale of numbers from one to six; it would be sufficient for him to note any marked deviation from the normal, and it might be of use to him to have some such list of qualities at hand, if only to establish some kind of uniformity.

It would appear that the record for each boy could

be kept on a single sheet, which could be easily transferred from one master to another, as the pupil passes up the school. Down the paper will run the list of those qualities it is considered desirable to note. The form- or house-master will mark, periodically, after any necessary consultations, a + or - against any quality the presence or absence of which has been noted. This will not be done at the end of term, amidst the bustle and confusion of writing the regular reports, and performing arithmetical gymnastics with lists of marks. The lazy and incompetent will pass the sheet on almost or entirely untouched; the faddists or the prejudiced will find their opinions checked and modified by those of the more competent. When the boy's school career is ended, and the headmaster wishes to write his testimonial, he will have the materials ready to hand, and materials which will enable him to tell employers something of value. They do not want to know whether a boy can pass examinations and play games, or whether he has found the machinery of education congenial. They want to know the actual and potential value of the finished product, and this form of report might help the headmaster to give them the information they require.

Would such a form of report place undue power in the hands of the schoolmaster to make or mar a boy's future? Not if we assign to the profession of teaching the importance that it might rightly claim, and are willing to admit that teachers, as a whole, can form a trustworthy judgment of the pupils under their care. The possibility might be denied, on the ground that the terms suggested in this report are not sufficiently scientific, and do not fall in with the latest psychological theories. The sub-committee, however, is of opinion that, until psychology as applied to education has a better claim to be considered an exact science, until one theory ceases to supplant another with a rapidity bewildering to the ordinary man, much good may be done by using old-fashioned terms; not but what it would be interested to hear of any experiments made on more scientific lines, whether Herbartian or other, to construct a report such as is here proposed, and would gladly welcome any hints or suggestions for improving or simplifying the tentative list of qualities.

A far more probable objection is that the scheme is too psychological, too much concerned with the inner workings of the human mind, which is beyond our comprehension; in short, that the whole idea is nonsense. To that criticism the sub-committee can only reply by a decided negative. The scheme is worth trying, if only for its effect on the teacher. How many of us know with certainty which of our bright pupils owes his normal good report to an exceptional memory, which to a wish to learn, which to a desire for praise, which to a love of conquering difficulties, which to a combination of some or all of these qualities? How many of us can analyse the cause of failure in our bad pupils—inattention or overgrowth, hatred of the subject or real incapacity, laziness or contempt for knowledge, lack of concentration or over-quickness, too great interest in sport or too little interest in anything at all? It would be an intellec-

tual exercise of enormous value to each of us to collect and systematise our disjointed ideas on these questions, to try to find out for ourselves the peculiar difficulties we have to face in our own class.

A few experiments, in classes of various ages and social ranks, might prove of real value, and the education sub-committee invites the co-operation of any teachers who would care to help in such an investigation; it would suggest that the experiment be tried for a year, and that the opinions of at least three masters should be taken on each boy once in each term, and that the results, together with any remarks as to their apparent value, be sent in to the secretary of the sub-committee, who will supply the necessary forms.

In conclusion, the sub-committee points out that it is merely indicating one possible line for experiment, one variation on the existing type of school report. Most of us are a little tired of compiling figures, form-places, examination results, and athletic distinctions. We want to go a little deeper, to get a new synthesis proceeding from a new analysis.

SUGGESTED FORM OF RECORD.

Name :

Special Circumstances :

(Mark a + or - against each quality the presence or absence of which is particularly noticeable, otherwise leave column blank.)

	Date and Form	Date and Form	Date and Form	&c.
Honesty ... ..				
Perseverance ... ..				
Common sense ... ..				
Moral courage ... ..				
Independence ... ..				
Orderliness .. ...				
Social feeling ... ..				
Power of leadership ..				
Self-control ... ..				
Concentration ... ..				
Memory ... ..				
Power of expression..				
Deductive power ... ..				
Alertness ... ..				
Originality ... ..				

Master's Initials :

\* Add any other quality that you think worthy of notice.

HISTORY AND CURRENT EVENTS.

OUR attention has recently been directed, by the deaths of members of the reigning families, to the two countries Bavaria and Austria. If we had been writing fifty years ago we could have coupled them as the two larger States of South Germany, and we have in our possession a coin of the Emperor Francis Joseph, issued in 1863, on which he is described as a member of the German confederation. The year 1866, however, with the seven weeks' campaign which culminated at Sadowa, ended the century-long rivalry between Prussia and Austria for leadership in Ger-

many by expelling the older of the two rivals. Henceforward we have been able to speak of Austria and Germany. The Archduchy of Austria, with the other German duchies and counties belonging to the house of Habsburg, has been thrust out of Germany, and has had to find a *modus vivendi* with its Slav and Magyar fellow-subjects. Austria—the eastern mark of Germany—has been driven eastwards. She can no longer threaten, as in the eighteenth century, to annex Bavaria, or even absorb her piecemeal.

WHAT a difference there has been in the lives of the present rulers of Austria and Bavaria! Francis Joseph, since his accession at the age of eighteen, in the year of revolution, 1848, to the thrones of his uncle Ferdinand, has been the centre of Austro-Hungarian politics. Indeed, some go so far as to say that his death will cause the break-up of the heterogeneous empire which he has ruled so skilfully. For the two sons of Maximilian II. of Bavaria have reigned, but scarcely governed. Maximilian succeeded, also in 1848, to the throne of a resigning monarch, his father Lewis I. Maximilian died in 1864, and in 1870 it began to be evident that Lewis II., his son and successor, was incapable of anything but admiration of Wagner, an admiration which found the most eccentric expression. When he died, in 1886, his brother and successor, Otho, was already an imbecile, who has since lived an unhappy secluded life, the government being conducted by his uncle Luitpold, whose death was the starting point of these remarks.

"THEY say" the mental incapacity of the two Kings of Bavaria is owing to a long course of intermarriage between cousins. If so, that reminds the student of history of another family history, that of the Habsburgs of Spain. We in England all know Philip II. of that house, and we may have heard of his mad mother Juana, whose marriage with Philip of Austria (Philip I. of Spain) brought the crowns of Castile and Aragon into the Habsburg family, or of his mad son Carlos, whose existence was the only bar to the succession to the thrones of Spain and England of the hoped-for heir of Mary Tudor. And those of us who have had occasion to teach the story of the War of the Spanish Succession, and have tried to master the intricacies of the genealogical table which all our text-books give us to "explain" the problem of 1700, will know that the successive Philips of Spain (III. and IV.) married their Austrian cousins, and thus left their crowns to the imbecile Charles II. Has Spain ever since had a monarch of power, except perhaps Charles III., the son of the "termagant"?

OTHO of Bavaria has no child, and the son of Prince Luitpold, who has succeeded his father in the regency, though himself sixty-eight years of age, has sons and grandsons. Some of these will probably succeed the present King when his long death in life shall terminate. The question has been asked: Why should not he who wields the power also have the title now instead of waiting for the course of nature? The question raises strange echoes. Was there not a Merwing King far back in the Middle Ages who reigned but did not govern? Did he not have a

Carling Mayor of the Palace, who governed but did not reign? And was there not an appeal to the then international authority of Christendom, an appeal which was successful? To what authority would the present rulers of Bavaria appeal? They are loyal subjects of Rome. Or, again, was there not an occasion in English history when we went so far as to deny the course of nature, and substituted on our throne her who had been heir-presumptive because she was the Protestant wife of a friendly ruler, for him who would have been educated as "Popish"?

## ITEMS OF INTEREST.

### GENERAL.

THE Women's Union Society of University College, London, is now revising its list of life members. All life members are therefore requested to send in their present address, together with date of joining the society, number of years at college, faculty, and degrees (if any), to the honorary secretary, Women's Union Society, University College, Gower Street, London, W.C.

IN connection with the School Journey Association, Dr. A. Morley Davies will lecture on Buckinghamshire on March 14th, at 8 p.m., at the Passmore Edwards Settlement, Tavistock Place, London, W.C. The success of the outings arranged in 1912 by the association has induced the committee to attempt three such meetings during the coming summer. Exact dates and other particulars will be forthcoming later. In May Mr. J. S. Fowler will take a party to Rochester and district; in June Mr. J. T. Chell will arrange a visit to Folkestone (members and their friends will be entertained to tea by Mr. R. J. Pratt, at his farm at Dymchurch); in September, Mr. R. Paulson will conduct a ramble over the Chilterns near Wendover. One purpose of the rambles will be to demonstrate the suitability of the localities as school journey centres. Mr. H. W. Barter, 51 Elm Grove, Peckham, S.E., will be glad to give full particulars of the association.

THE next meeting of the Teachers' Guild Education Society will be held on March 10th, when the subject for discussion will be "How to Deal with the Supernormal Child." Miss Taylor, of St. Mary's Training College, will be one of the openers of the discussion. Any schoolmaster or schoolmistress who is interested particularly in the training of "scholarship" children, or other supernormal children, is invited to communicate with Dr. Jessie White, honorary secretary of the society, with a view to receive a ticket of admission and an invitation to take part in the discussion.

PROF. PATRICK GEDDES is bringing to London his "Masque of Learning," which was recently produced with success in Edinburgh. This pageant of education will be presented at the Great Hall of the University of London, South Kensington, from March 11th to the 15th inclusive, at 8 p.m., and there will be one *matinée* on Saturday, March 15th. The object of the endeavour—to quote the words of the author—



is "to present an historic pageant of characteristic schemes illustrative of the progress of culture and of the history of education—each in the widest sense," and in each of the great periods of thought and action "to show one or more of its memorable moments, its characteristic movements." It begins with the fall of Rome, and proceeds through typical scenes from the Middle Ages and mediæval periods to the Renaissance and Encyclopædic age, and concludes with a scene expressive of the present and opening future. Tickets (from 10s. to 2s.) may be had on application from the Masque secretary, Crosby Hall, Chelsea, S.W.

THE members of the Société Nationale des Professeurs de Français en Angleterre and the successful candidates in the twenty-eighth annual examinations were the guests of the Lord Mayor and the Lady Mayoress at the Mansion House on the afternoon of February 1st, when the prizes and certificates were distributed by the Lady Mayoress. The report of the examinations committee gives the number of candidates this year as 5,360. The results of the oral examinations were satisfactory, but the written papers lacked something of correctness. The President of the French Republic again offered two Sèvres vases to the schools which obtained the largest number of marks. In the evening the annual dinner was held, and M. Paul Cambon, the French Ambassador, presided. Responding to the toast of his health, M. Cambon alluded to the direct method of teaching living languages, and said it does not give the results expected of it. The students of French of to-day do not seem to know the language so well as did those of a few years ago. Their knowledge of the written language is of a more elementary character. The better course lies in a compromise between the two methods. In English society he finds that people "of a certain age" speak French far better than the people of a younger generation.

THE annual meeting of the Association of Technical Institutions was this year held at Birmingham Municipal School of Technology, when Mr. J. H. Reynolds, the newly-elected president, delivered the presidential address. Throughout his remarks were inspired by a ripe experience, and ranged over the whole field of national education. The address deserves to be studied by all who are engaged in educational work. Commenting upon the educational waste which has so baleful an effect upon the results of our efforts, he said: "The total number of evening students in England and Wales for the session 1910-11 was 765,275, including all ages from twelve up to and beyond twenty-one; of this number only 628,121 qualified for grant. Of the total number enrolled, 325,117 were under seventeen years of age, 186,179 were over seventeen and under twenty-one, and 247,912 were over twenty-one. Schools of art attended by 45,000 day and evening students are not included in this statement. These figures reveal an enormous leakage, especially in the ages between thirteen and seventeen, for out of a child population the ages of which range between these three years estimated at scarcely less than 1,800,000, there are only 270,213 in the evening

schools. We have societies for the after-care of the feeble-minded, and other derelicts of the population, who, however carefully tended, can never save this nation, and we do rightly to care for them, but how much greater is the need for the after-care of the sane and healthy children who will, if rightly guided and nurtured, prove its strength and its salvation, and upon whom so much money, thought, time, and labour have been spent. It is as though we had diligently ploughed the field, sown the seed, let it ripen unto harvest, and then refused to garner it and prepare it for the use of mankind. . . . Wherein lies the remedy? The answer is the child must still remain the ward of the schoolmaster until he has reached seventeen years of age. . . . Compulsion there must be, but the duty must lie upon the employer, who must give the facilities and arrange to reduce the hours of work for employees below seventeen years of age."

FOR many years Mr. Reynolds has urged consistently that efforts to provide successful higher education in this country—whether academic or technical—will only prove successful when our secondary schools send to our colleges and universities boys and girls with as good a general education as those leaving German secondary schools. "What a difference it would make," he said, "to the general level of English higher education were the recruits to English universities and the highest technical institutions fed with such well-prepared material. We have made a serious advance during the last ten years, yet the general product of our public and of our secondary schools remains far below the standard of the German gymnasium, or of the *Ober-Real-Schule*. We have not yet systematised our secondary education, so that in going from one large urban centre to another the scholar will be sure to find a school of similar standing to that he has left, and may thus pursue his studies unbroken, nor have we so organised the schools that the pupils on *leaving them*, having satisfied the conditions required, may at once enter any university or technical high school in the Empire, without further examination. On the Grant List of the Board of Education there are 971 secondary schools for boys and girls, with 160,561 pupils of all ages; 60 per cent. of whom it is worthy of note (it is 85 in Wales) were scholars from the elementary schools. Of this gross number 145,996 are under sixteen years of age, leaving only 14,665 above that age, but the average length of the school life of all the pupils, eliminating those under twelve, was only *two years and nine months*."

AT the annual meeting of the Moral Education League, held on February 14th, the following resolution was adopted: "That this annual meeting of members of the Moral Education League welcomes Lord Haldane's education proposals set forth in his speech at the Manchester Reform Club on the 10th of January, as putting educational policy on a high plane, and as calculated to rouse the nation to grapple resolutely with this fundamental question, and entertains the hope that a comprehensive scheme of national education, framed on the broadest moral and civic lines, and making for the good of the nation as a

whole, may later be introduced before Parliament." The annual report submitted records the influence of the league during the year in various parts of the world—in Manitoba, where its "Graduated Syllabus of Moral Instruction" has been adopted for use in all the public schools of the province; in India, where one of its moral lesson-books has been adopted for use in all the Government schools of the Bombay Presidency; in New Zealand, where a recent Government Education Commission has recommended the use of some of its books; in France, where a powerful moral education league has been founded; and elsewhere. The publications of the league during the year include two books of moral lessons, a book on the duties of citizenship in the British Empire, and a scheme for the correlation of the teaching of history, geography, science and art.

We learn that Mr. Forbes Robertson and Lady Margaret Sackville do actually assist the Poetry Society in examining, and it was, we think, a pity that more was not made of such a reassurance in the first number of *The Poetry Review*. We hope the editor will return to his spirited attack on our abominable stage declamation of beautiful verse. The second number of the review is before us. It is thoroughly provocative, and the editor's fine paper on Shakespeare's optimism may well be read in the light of Mr. Livingstone's equally challenging note in "The Greek Genius." A paper on Mistral invites one *félibriser*, and there is a welcome article on Thomas Moore, generally known as Tom Moore. "A Dance of Death" is an interlude, and Sir J. Yoxall has a much too brief note on the necessity of dealing very differently with poetry in the elementary school. *Sed quis custodiet custodes?* "I saw well enough," said a visitor to a poetic production in a London theatre, "too much, but I could hear scarcely at all." And the audiences do not care; they go to *see*.

The Franco-British Travel Union was inaugurated in 1911, and proposes to hold a congress, in London, in September next. The society aims at providing assistance to the foreign traveller or tourist who visits France or England, and contains members of various classes. Teachers of geography, as well as the ever-growing band of British travellers in France, would do well to communicate with the organising secretary, Mr. T. D. Hawkin, 33 Craven Street, London, W.C. The union has issued the first number of the official English publication, *France*, price 6d., which contains valuable particulars, in addition to several short interesting articles. The congress proposes to discuss many questions of great practical importance, such as desirable improvements in passengers' Custom-house formalities, suggestions as to new hotels, and the system of "paying-guests," as it applies to foreign travel.

The issue of *Educational Handwork* for February commenced a new volume, and the opportunity was taken greatly to improve the style and appearance of the magazine. The contents of the issue are varied and interesting, and make a direct appeal to all who are interested in what is often called "practical" education. We commend our little contemporary to

all who are responsible for teaching handwork in its many various forms; they will find in its pages much helpful guidance in their work.

THE Visual Instruction Committee of the Colonial Office has issued a book of lantern lectures on Australasia, the third of a series for which a special fund was raised by a committee of ladies, presided over by Lady Dudley, and under the patronage of her Majesty the Queen, then Princess of Wales. The book is being published by Messrs. George Philip and Son, and the slides may be bought from Messrs. Newton and Co., of 37 King Street, Covent Garden. The committee will next issue a set of lectures on British North America, and lectures on South Africa are being prepared. Books on India and on the sea road to the East have been published already.

THE annual report of the National Home-Reading Union speaks of the steady progress of the movement, and of the development which is taking place in its work amongst boys and girls, particularly in elementary day and evening schools. Many education authorities have expressed their willingness to encourage the formation of circles by undertaking to pay the small fee by which a class can be recognised as a circle, and to supply the books required for home reading. It is estimated that through the union's reading circles all over the country more than 100,000 children are being influenced to care for good and healthy books. The report gives an account of the union's aims—the guidance of readers of all ages and classes in the choice of books, and the grouping of them, where possible, in reading circles for mutual help and interest. The membership fees range from 1s. to 4s., according to the courses of reading selected, and members and circles may be enrolled at any time. The offices of the union are 12, York Buildings, Adelphi, London, W.C.

#### SCOTTISH.

A PLEASING echo of the Glasgow International Exhibition of 1911 was heard the other day, when the chairman of the executive committee announced that a sum of £15,000 was available as a surplus, after paying all expenses. This sum, in accordance with the original intention of the promoters of the exhibition, is to be devoted to founding a chair in Glasgow University in Scottish history and literature. The late Principal Story, speaking in 1907, declared that to him it seemed little short of a burlesque that in a Scottish university there should be no recognition of the national literature and history. It is satisfactory to know that at last this reproach is to be removed from one of our universities.

A SPECIAL meeting of the Class Teachers' Federation was held in Edinburgh to determine the future policy of the body in regard to some of the chief educational questions of the day. Resolutions were passed in favour of enlarged school board areas, reduced size of classes, and the limitation of the maximum numbers in any one school to 800 pupils. A long and animated discussion took place over a proposal to demand equal salaries for men and women doing the same work. Mr. Macpherson (Dundee), in

moving a direct negative, said that in New York, where a similar proposal had been adopted, the result had been a reduction of the maximum of the men to the level of the women's maximum. The women had thus gained absolutely no advantage, while the men had been seriously penalised. When the vote was taken, Mr. Macpherson's amendment was carried by a considerable majority.

THE annual report issued by the University of Edinburgh states that during the year the total number of matriculated students was 3,404, including 572 women. Of these, 1,259 were enrolled in the faculty of arts, 406 in science, 54 in divinity, 277 in law, and 1,330 in medicine. The numbers in the faculties of arts and medicine show a small reduction as compared with previous years, but there is a considerable increase in the faculty of science. Of the students of medicine 44 per cent. belonged to Scotland, 17 per cent. to England and Wales, 7 per cent. to Ireland, 8 per cent. to India, 20 per cent. to British Colonies, and 3 per cent. to foreign countries. These figures prove that Edinburgh University is maintaining in the lands across the seas her reputation as a great school of medicine.

At a special general meeting of the Secondary Education Association (Glasgow Branch) Mr. D. MacGillivray read a paper on Circular 340, which deals with post-intermediate courses. He said that no Departmental circular had ever been received with such general favour and approval as this. This was not surprising, having regard to the circumstances of its origin. It had been hammered out between the Education Department and representatives of secondary-school teachers, and was practically approved by all responsible opinion before it was issued. It would be well if the policy of consulting expert opinion was pursued in all cases where educational changes were in contemplation. Had this been done in the case of the Junior Student Circular the present unfortunate position would never have arisen. The only criticism that had been directed against Circular 340 had come from the Geographical and the Historical Associations. These bodies complained that the effect of the new regulations was to banish geography in a majority of cases from the post-intermediate stage, and to reduce history study to a merely formal consideration of the subject. Against that must be set the fact that these subjects had for the first time been raised to the dignity of independent subjects on the higher standard. The associations in question desired these subjects to be both compulsory and optional—compulsory as a part of English and optional as independent subjects. That was an impossible proposition, as it would place these subjects in a position enjoyed by no other subject in the curriculum.

At the same meeting, Mr. Butters, Ardrossan Academy, gave in a report on Circular 347, which deals with the curriculum of junior students. The circular has been received with a general chorus of disapproval, which was increasing in intensity every day. It violated the freedom of schools in many ways. It laid down a rigid time-table to which all had to

adhere. It rendered a university course for these students almost impossible. Glasgow School Board was so dissatisfied with the conditions that it threw overboard the whole junior student system, and other large boards were contemplating doing the same thing. After an interesting discussion, it was unanimously agreed to recommend the abolition of the junior student system and the substitution for it of the alternative scheme under Art. 15 (b).

THE annual meeting of the Carnegie Trust for the Universities of Scotland was held this year in London. The Earl of Elgin submitted the report of the executive committee, which showed that the main business before the committee was the reconsideration of the needs of the universities in view of the fresh distribution of the funds under clause A of the Trust Deed. The universities had been invited to submit statements of their more urgent requirements, and from the replies received it was apparent that the claims for new buildings would again bulk largely in the estimates. Glasgow proposed to complete the original design of the University buildings by the erection of the fourth side of the quadrangle. Edinburgh proposed erecting additional buildings on a site already acquired near the University, while in Aberdeen a strong case had been made out for additions and reconstructions at King's College. In the case of St. Andrews the difficulties that had arisen between the University Court and the council of University College, Dundee, prevented the authorities from submitting any proposals for the next quinquennium period.

FOR some time a committee representative of Edinburgh University and of the Provincial Committee for the Training of Teachers has been considering the question of hostel accommodation for the students under their care. The difficulty of financing any such scheme has hitherto proved an insuperable barrier to progress, but recently the committee approached the Carnegie Trust, and secured its cordial support and practical help in initiating the scheme. The executive committee has recommended that a loan of £25,000 carrying 2½ per cent. of interest should be placed at the disposal of the joint committee for the erection of hostels.

#### IRISH.

THE text of a new Bill has been published relating to intermediate education, which Mr. Birrell proposes to pass during this year's session of Parliament. The Bill is short, and is intended to give the Intermediate Board more freedom in the distribution of grants than it at present enjoys. At present grants can only be made on the result of a pass examination. The Bill proposes that it shall not be obligatory upon the Board to hold any public examinations except for prizes and exhibitions, but the Board may, if it thinks fit, provide for the payment to managers of schools of grants dependent (a) on the results of inspection; or (b) partly on the results of inspection and partly on the results of honour examinations. A subsidiary purpose of the Bill is to enable the Board to make a scheme for the superannuation of its own officials. If this Bill is unopposed, it will pass; if opposed, it

will probably be withdrawn. It will almost certainly be opposed, and for this reason. The Bill is not definite enough. The Irish public is prepared for a reform in secondary education, but is not prepared to adopt a scheme by which payment to schools may depend on how picked pupils will do in an honour examination. The game scarcely seems worth the candle. A genuine reformation, with registration, leaving-certificate examinations, pensions, capitation grants, and increased funds, would awaken some enthusiasm, arouse discussion, and offer a basis for progress. All these things are in the air, and the courage that would attack them would meet with admiration. A Bill that ignores them seems out of touch with realities.

WHAT about Mr. Birrell's autumn scheme and its £40,000? It aroused some hopes, because it tried to deal with an admitted grievance—the wants of assistant-teachers. Is it being abandoned, in spite of large support, on account of opposition which must have been anticipated?

IRISH education seems always to be in a state of ferment. Another Commission, to inquire into complaints made regarding certain regulations and practices of the Commissioners of National Education, has been appointed, with Prof. Sir Samuel Dill as chairman. The terms of reference are to inquire and report whether the rules, regulations, and practice of the Commissioners with regard to the inspection of schools and to the awarding of increments and promotion to teachers, and the methods adopted by the inspectors in carrying out their inspection, are conducive to sound education, to efficiency on the part of the teachers, and to fairness and uniformity in their treatment; and whether any and, if so, what changes are desirable in the system of inspection; and also to report on the relations of the Commissioners and their inspectors to the teachers, and upon the rules and regulations of the Commissioners with regard to the conduct of the teachers, and especially as to whether such rules and regulations unduly restrict the liberty of the teachers in any respect; and whether in any cases some notice of the intention to make new rules should be published, and whether due facilities for appeal and means of access to the Board are allowed to the teachers. This Commission has given to it the opportunity to make a report which will radically alter national education.

THE Classical Association of Ireland held its annual public meeting in the Lecture Theatre of the Royal Dublin Society on January 31st. The chair was taken by last year's president, the distinguished Latinist, Dr. L. C. Purser, fellow of Trinity College, and this year's president, Rev. H. Browne, professor of Greek in University College, Dublin, delivered his presidential address on the voice of Hellas. The meeting was remarkable for the presence of two distinguished representatives of the English and Scotch Associations, Dr. R. A. Macan, master of University College, Oxford, and Prof. J. S. Phillimore, of Glasgow University. The president-elect for next year is the Right Hon. Mr. Justice Ross.

THE National University of Ireland announces that the Senate has directed certain changes in the regulations and courses for matriculation for the present year. In group 6 of the subjects for matriculation, after the words "natural philosophy," the words "or, as an alternative, physics," are to be inserted, and the course in physics is to be the same as the third-year course in that subject, as prescribed by the Department of Agriculture and Technical Instruction for the Intermediate Board examinations. Details are also given of a course in Welsh.

THE Department has issued various circulars of interest to teachers. An examination in the principles, methods, and history of education, with special reference to science teaching, will be held in Dublin, and possibly in Belfast and Cork, on Saturday, June 28th next. Owing to alterations made by the Board of Education (London) in its scheme of art examinations, the Department is making new regulations for certificates for teachers of drawing and art. The Department offers for competition three teacherships-in-training, tenable at the Metropolitan School of Art, Dublin, for the session 1913-14, one being reserved for male candidates and one for female candidates; the examination will be held at the end of June. Another circular gives general regulations governing the conduct of the technical school examinations for 1913, and yet another gives particulars of the session 1913-14 of the Albert Agricultural College at Glasnevin.

#### WELSH.

THE Secretary to the Welsh Department of the Board of Education has dispatched to the Welsh education authorities a circular letter stating the sort of programme for festivals on St. David's Day which might be substituted for the ordinary school work. The Board distinctly states that the suggested programme includes more items than any one school is likely to need, and that it is not intended to limit the discretion of authorities in proposing other alternatives, though any alternatives had to be submitted by the middle of February (the circular itself is dated January 31) to his Majesty's inspector. At the same time, in a note, it is added that copies of the letter and programme should be ordered at once, and will be supplied "as soon as they can be obtained from the printers"! This in a circular dated January 31, and to which a thought-out programme had to be submitted by the middle of February.

THE approved programme includes singing, preferably of Welsh national airs or folk-songs. The pedagogic ground is set out as follows: "National or folk-songs are the expression in the idiom of the people of their joys and sorrows, their unaffected patriotism, their zest for sport, and the simple pleasures of a country life. Such music is the early and spontaneous uprising of artistic power in a nation, and the ground on which all national music is built up. Folk-songs are the true classics of a people, and their survival, so often by tradition alone, proves that their appeal is direct and lasting. If children are to place a due value on their inheritance of the best music of the nation to which they belong,

their progress in musical power should be in epitome that of the race, and this it cannot be if the old songs are ignored."

OTHER recommendations for St. David's Day celebration in the letter are an address or addresses on St. David, or lives of eminent Welshmen, Penillion singing, telling of stories from the Welsh classics (e.g., the Mabinogion) or from Welsh folklore, harp-playing, tableaux, or representations, in character, of episodes in British history, a short account of the Eisteddfod (its origin, nature, and national character; and why Welshmen should support it), sketches of the lives and achievements of great men or women who have been connected with the district, procession and visit (by past and present scholars) to the birth-place, home, or grave of some person distinguished in national or local history, planting of trees or shrubs in the school precincts, unveiling of additions to the school's portrait gallery of eminent Welshmen and Welshwomen, recitations, celebrations in connection with the school playground or gardens, competitions, excursions, physical exercises—e.g., folk-dancing—national anthems of England and of Wales. Lastly, it is suggested that the actually chosen topics constituting the programme should, if possible, be forwarded to the National Library of Wales, Aberystwyth.

THE superintendent of education at Swansea has brought before the notice of the Swansea School Attendance Committee the reluctance on the part of a number of parents to allow their children to study domestic subjects, such as cooking and laundry. It was stated that the objections were, sometimes, that children caught cold in going to and from the centres, when they got wet, but further that parents held that they could teach cooking and laundry at their own homes. The superintendent stated that his experience was that it was the parents who could not, or would not, teach domestic subjects at home who objected to them being taught at school. It was decided that the next parent who withdrew a child should be prosecuted.

A MEETING to promote the establishment of a National College of Music in Wales has been held at the Caxton Hall in London, when it was decided to invite the executive committee of the Court of the University of Wales to take steps to convene a conference in the Principality or at Shrewsbury of the leading Welsh musicians and of representatives of the schools of music attached to the university colleges, in order to consider the present position of the study and cultivation of music in Wales, and to formulate a scheme for its improvement, such scheme to be submitted to a convention representing all classes interested in the question. It is urged that what is wanted in a national college of music is a distinct musical "atmosphere." It is not enough to teach the technique of music, but there must be opportunity of hearing, often, the best music performed effectively, and the stimulus of musical enthusiasm. In other words, the London Royal Academy of Music should be paralleled by a Welsh Academy of Music.

A POINT of general interest in connection with the arrangements of the music sub-committee for the National Eisteddfod, to be held at Abergavenny this year, is the suggestion of the important innovation of adding to the programme a competition supplementary to the chief choral competitions, and open to the choirs that compete in this event, for "supreme merit." It is proposed that the prize should be a specially designed trophy, value £70, and the test to be Bach's motet, "The Spirit Helpeth" (unaccompanied). The intention is to have a competition free from financial considerations, no money prizes being offered, and by this means to provide a solution of a long-standing difficulty, and at the same time give distinction to the Abergavenny meeting.

### THE TEACHING OF MATHEMATICS IN THE UNITED KINGDOM.

No. 22. *The Teaching of Algebra in Schools.* By S. Barnard. 1½d.

No. 23. *Research and Advanced Study as a Training for Mathematical Teachers.* By G. H. Bryan. 1½d.

No. 24. *The Teaching of Mathematics in Evening Technical Institutions.* By W. E. Sumpner. 1d.

No. 25. *The Undergraduate Course in Pass Mathematics, Generally and in Relation to Economics and Statistics.* By A. L. Bowley. 1½d.

No. 26. *The Preliminary Mathematical Training of Technical Students.* By P. Abbott. 1½d.

No. 27. *The Training of Teachers of Mathematics.* By T. P. Nunn. 1½d.

No. 28. *Recent Changes in the Mathematical Tripos at Cambridge.* By A. Berry. 1½d.

No. 29. *Mathematics in the Preparatory School.* By E. Kitchener. 1½d.

No. 30. *Course in Mathematics for Municipal Secondary Schools.* By L. M. Jones. 1½d.

No. 31. *Examinations for Mathematical Scholarships at Oxford and Cambridge.* By A. E. Jolliffe and G. N. Hardy. 2d.

No. 32. *Parallel Straight Lines and the Method of Direction.* By T. J. Garstang. 1d.

No. 33. *Practical Mathematics at Public Schools.* By H. H. Turner, R. C. Fawdry, A. W. Siddons, F. W. Sanderson, G. M. Bell. 1d.

No. 34. *Mathematical Examinations at Oxford.* By A. L. Dixon. 6d.

(Published by His Majesty's Stationery Office.)

THE earlier reports on the teaching of mathematics dealt principally with various aspects of the problem as it presented itself in the elementary and secondary schools. Summaries of these reports have already been given in articles in THE SCHOOL WORLD (November, 1911, and July, 1912), and in the present article we propose to treat in a similar manner a further set of papers, which, as the titles indicate, discuss matters relating to secondary, technical, and university teaching. Within the space at our disposal it is clearly impossible to attempt any serious estimation of the value of papers dealing with such diverse topics, treated in different ways by different writers. Some are historical, some critical, and others constructive; but in every case the writer has a special and intimate knowledge of the subject with which he deals.

The first paper is both constructive and destructive. Mr. Barnard handles very severely a number of the current text-books of algebra. "Most of the text-

books contain a good deal of loose reasoning. One cause of this is that the writers do not always explain the exact meaning of words used in a technical sense. Difficulties are often avoided by the use of ambiguous phrases. The chief fault, however, lies with the present system, which does not appear to lend itself to clear exposition. As a result, the text-book is used chiefly for the sake of the examples which it contains." Mr. Barnard goes on to describe in detail a logical course. Of this, Stage 1 is a generalised arithmetic, in which letters are used to represent natural numbers. In Stages 2 and 3 negative numbers and fractions are introduced. The subsequent stages follow the usual lines, but greater attention than usual is paid to the subject of *approximations* and the calculation of *limits of error*.

Mr. Barnard's course is ideal, but we fear that few teachers would use it so successfully as its author has. Mr. Barnard closes with a criticism of Mr. Godfrey's paper on the algebra syllabus in the secondary school.

Prof. Bryan's paper on research and advanced study (23) is of great interest and importance. His first point is that although some excellent work is produced in this country, it is entirely due to a small number of men. Few Englishmen are interested in mathematics, most are indifferent to research, while "practical men" are as a rule hostile to it. There is a widespread belief that mathematics is of no use except as a mental training. A second point is that educational authorities fail to encourage research in mathematics in the same way that they encourage it in physics or chemistry. Prof. Bryan holds that mathematical research was never more needed than it is at the present day, when so many new lines of development are opening both for the pure and applied mathematician. Seeing that college posts are few, schools must employ researchers, and will profit by the inspiration such men will bring to their students. Suggestions are made as to various types of advanced study which might be undertaken.

The teaching of mathematics in evening technical institutions is described by Dr. Sumpner (24). "The object of the studies (of the students in these institutions) is more utilitarian than that of ordinary undergraduates. Their educational outlook is in many cases narrower, and is certainly differently directed." The students may be classified as artisans, engineers, and mathematicians, the latter forming 5 per cent. of the total number. The mathematical work of the artisan classes is of a primitive character, but "experience shows that students, however utilitarian their views, can be interested in theoretical principles if useful applications of the theory can be shown at the time the principle is first explained." The engineers form the largest portion of those attending evening schools, and there is an increasing tendency to arrange the syllabus primarily in their interests. Dr. Sumpner has no doubt that the most useful and effective teaching is done under the name of practical mathematics. He is equally confident that some of the worst is done under the same name. The chief qualifications required in the teacher are originality and independence of text-books. He should have some knowledge of, and sympathy with, engineering problems. The distinctions between the various parts of mathematics must so far as possible be ignored, and the study of the calculus should begin at an early stage.

It is interesting to note that "the enormous increase of students in the classes in practical mathematics has resulted in a very large increase in the number of students attending classes of the ordinary academic type."

Prof. Bowley criticises the present undergraduates' course in pass mathematics at London University, and sketches what he describes as an ideal course (25). Speaking of the arts course, he says: "The objective of the mathematical course should be to complete the education of a student whose other studies are linguistic or historical, and is comparable to that of the alternative study of philosophy. Applications need not be considered as important in themselves. The education should be frankly abstract and deal in ideas. It is the logical, critical, analytical, and generalising faculties that should be developed by the course."

In the science course Prof. Bowley advocates a combination of pure and applied mathematics, which are at present separate subjects, under the title of "General Mathematics." This suggestion is worthy of serious consideration, as students who take both physics and chemistry are compelled to drop either pure or applied mathematics after their intermediate examination. The concluding sections of the paper discuss mathematics for political economy and statistics.

In the next report (26) we are taken back again to technical students. The ground covered by Mr. Abbott is in some respects the same as that by Dr. Sumpner, but the former gives more detailed information regarding the syllabuses of work in force at various technical colleges throughout the country. We learn, for example, how the very elastic term "practical mathematics" is interpreted in different places. The chief point, however, in Mr. Abbott's paper is that much of the more elementary teaching in technical institutes would not be required were the students taught in a satisfactory way in the elementary and secondary schools from which they are drawn.

The deficiencies are not so marked in the case of the day students, who come chiefly from secondary schools, but "where faults exist they consist in the main of a lack of accuracy, both in working and thinking, inability to apply knowledge to new problems, hazy notions as to fundamental principles, and a tendency to regard mathematics as something aloof from the phenomena of everyday life."

The evening students are chiefly drawn from the elementary schools, and the reports collected by Mr. Abbott indicate a "consensus of opinion that the teaching of arithmetic in these schools cannot be considered satisfactory"; "there is a very grave lack of thoroughness and accuracy."

In the report on the training of teachers of mathematics (27), Dr. Nunn describes the existing arrangements for producing teachers of mathematics, and the principles that should determine the character of their training. The title of the paper is perhaps slightly misleading, for the teachers to whom reference is made with but few exceptions teach mathematics as one amongst several subjects. They may or may not have received a university training, and their field of work lies chiefly in infant and elementary schools. Of university graduates in mathematical honours and their training, or more usually lack of training, Dr. Nunn has little to say. Dr. Nunn's views are sufficiently represented by the following sentences: "The aim of the teacher of mathematics is not so much to communicate certain 'truths' as to cultivate a typical form of intellectual activity." "The course of training should include general genetic psychology, and, in addition, a detailed study of the mathematical development of the normal boy or girl. In other words, the student in training must think his way afresh through the mathematical curriculum from the genetic standpoint; logic, psychology, and the history of the science

being his guides. Constant practice and observation in a school are necessary."

The nature of the recent changes in the mathematical tripos are probably well known to the majority of readers. Mr. Berry (28) thinks that the new Part i. promises well, but has much fear that the new Part ii. will prove unsatisfactory.

Mr. Kitchener writes optimistically of the position and prospects of mathematics in the preparatory school (29). He believes that the majority of teachers would say that the change in the method of teaching geometry has been for good. There is a lack of uniformity in arithmetical teaching, and a danger of covering too much ground in algebra. But there is a general agreement amongst the masters of the public schools that boys come from preparatory schools better equipped in mathematics than ten years ago. It is desirable that teachers should adopt the schedule issued by the curriculum committee of the Headmasters' Conference.

Mr. Lionel Jones describes his ideas regarding a course in mathematics suitable for municipal secondary schools (30). With but few exceptions the pupils in such schools are intended for a commercial life. The following extracts from the paper indicate Mr. Jones's views: "To be of any real good it is necessary that a subject studied should be carried to the useful stage." "(A boy) should not be obliged after leaving school to attend classes in mathematics either under the title of 'Practical Mathematics' or 'Commercial Arithmetic' in order to understand the applicability of the mathematical knowledge he is already supposed to have attained." "It is *prima facie* probable that the methods employed to render any acquired knowledge useful will be more truly educative than those which merely aim at the acquisition of knowledge with no thought of its utility."

The fact that Cambridge gets the pick of candidates for mathematical scholarships accounts for much of Mr. Jolliffe's dissatisfaction with the work done by those who go to Oxford (31). Still, all teachers would do well to bear in mind that "insistence on the use of methods of general application, on logical order of statement, on the fact that 'necessary' and 'sufficient' are not the same, and on the knowledge of some common-sense methods of checking results, is sorely needed, and will be found of more value for examination purposes than trying to give the boy an illustration of every type of problem that has ever been set."

Mr. Hardy, writing from Cambridge, while on the whole agreeing with Mr. Jolliffe, takes, as is natural, a rather more cheerful view of the situation. Mr. Hardy considers the "essay" paper invaluable. It separates out the best candidates more effectively than any problem paper. Another interesting remark is that the boys who fail to justify their election to scholarships are invariably public-school boys. Finally, Mr. Hardy has a word of advice for schoolmasters, which is practically identical with that given by Dr. Bryan: "If schoolmasters would devote to the serious study of mathematics, to the continuance of their reading, and even, in exceptional cases, to a little independent research, a tithe of the time that they now devote to the organisation of examinations, the framing of schedules, the discussion of details of pedagogic method, and the writing of inferior textbooks, I am sure that the results would soon become visible in our examinations."

Mr. Garstang's essay (32) is a severe criticism of the attempt made in the Board of Education Circular (No. 711) to base the treatment of parallels on the notion of direction. He maintains that the advocacy of this method indicates the absence in England of any direct contact between the critical movement of

higher pure mathematics and the movement for the reform of geometrical teaching, and that it is dangerous to real reform and to true education.

In paper No. 33 the practical mathematics at Clifton, Harrow, Oundle, and Winchester is described by the responsible masters at the several schools, and Prof. Turner provides an introduction which focusses the main lessons to be drawn from the reports. He considers "the success of the venture so far is highly encouraging; the boys enjoy their work and learn with alacrity instead of with reluctance"; moreover, "the great gains to the average boy have not been accompanied by any loss to the specialist worth mentioning." Practical work further "fosters an interest in the higher parts of mathematics at the earliest stage possible, and makes it much easier to set a boy to think a thing out for himself." The disadvantages, real or apparent, are that "progress is not so rapid, or, at any rate, not so obvious," as with the old method, and "practical work cannot really be tested by examinations."

The last paper (34) is purely historical. It contains the syllabuses in force at various times of the mathematical examinations at Oxford, and copies of the papers set in 1885 and 1911.

### MODERN TENDENCIES IN HISTORY TEACHING.

*A History of Europe.* By A. J. Grant. xiv+874 pp. (Longmans.) 7s. 6d. net.

*France.* By C. Headlam. viii+408 pp. (Black.) 7s. 6d. net.

*The Last Century in Europe.* By C. E. M. Hawkesworth. viii+526 pp. (Arnold.) 5s. net.

*Australasia.* By A. W. Tilby. viii+447 pp. (Constable.) 6s. net.

There are distinct signs nowadays that the subjects as well as the methods of history are changing. We are getting more and more impatient of information that has no obvious bearing on our present circumstances, and does not help us to understand the world we live in, or supply us with principles for guidance. Not even the veriest youngsters at school are now expected to know, *e.g.*, the details of the Wars of the Roses in English history, or of the Peloponnesian war in Greek. And the mass of information which is necessary to understand the Europe and the European world of which we form a part is so large that modern periods are at least beginning to crowd out all but the most instructive parts of "ancient" and "mediæval" history.

The four books that we have named are typical of this tendency. Prof. Grant compresses what he thinks important of the centuries from Homer to the fall of Napoleon III. into one volume, and details must therefore go. Yet we are not aware of crowding as we read his pages. All is set forth in orderly and proportional sequence, and only they who are preparing for examination in some special period need want more than he gives.

Mr. Headlam, in the volume he contributes to a series called "The Making of the Nations," has given us the most useful book in English on the history of France, in which, for the first time in our experience, we have been able to understand something of that curious alternation between despotism and anarchy which seems to be the substitute in French history for a constitutional development. We are especially thankful to him for a clear account of the finances. Why France did not more often go bankrupt, how in spite of constant deficits, she managed to conduct war for centuries, has always been a marvel. Mr. Headlam at least helps us to understand the mystery. These two books give us all, and perhaps more than

all, that some of us want to know of the more distant past.

The other two bring us to the present. Mr. Hawkesworth tells with patient detail the story of the years between 1814 and 1910. We are sometimes bewildered with the names, especially in Spanish history, but we have in his pages a story which helps us to understand modern Europe and its recent memories. Mr. Tilby, in the fifth volume of his work on "The English People Overseas," introduces us to a world which scarcely had an existence, at least any conscious existence, until a little more than a century ago, and tells *con amore* the story of Australasia. If it were not for certain casual remarks of his which make us think him cosmopolitan, we should be tempted to think he was Australian, with such careful detail and enthusiasm does he enter into the politics of the antipodes.

All four books are good. The only complaint we have to make is against Mr. Headlam's treatment of proper names and against some of the maps in his book. These latter are not good, and one of them surely must have been borrowed from a French book, for all the names are in that language. And why does Mr. Headlam speak of "Henri" and "François" in a book for English readers, whereas he never speaks of Heinrich or Franz or Karl on the other side of the Rhine? Let the reader learn his ancient history from Prof. Grant, or, if he wants more detail about France, from Mr. Headlam, and his modern history from Mr. Hawkesworth and Mr. Tilby, and he will not be badly prepared to read with understanding his daily newspaper.

### THEORY AND HISTORY OF EDUCATION.

(1) *A Cyclopaedia of Education*. Edited by Dr. P. Monroe. Vol. iii. 682 pp. (Macmillan.) 21s. net.

(2) *Life and Work of Pestalozzi*. By Prof. J. A. Green. 390 pp. (Clive.) 4s. 6d.

(3) *Infant Schools and Kindergartens*. By E. R. Murray. 145 pp. (Pitman.) 2s. 6d. net.

(4) *A Housemaster's Letters*. 313 pp. (Smith, Elder.) 6s. net.

(5) *The Art of Education*. By Dr. I. W. Howerth. 237 pp. (Macmillan.) 4s. 6d. net.

(6) *The Psychology of Educational Administration and Criticism*. By Dr. F. H. Hayward. 592 pp. (Ralph, Holland.) 7s. 6d. net.

(7) *Experimental Psychology and Pedagogy*. By R. Schulze. Translated by Dr. R. Pintner. 364 pp. (Allen.) 15s. net.

(1) To say that Monroe's "Cyclopaedia of Education" is by far the most satisfactory work of its kind that has yet appeared in English is not to say much, so little satisfying are most of its competitors. The work is to be completed in five volumes, of which the third now lies before us. As might be expected of a cyclopaedia produced in America, the distribution of space leaves much to be desired from the Englishman's point of view. Still, the list of contributors contains so many distinguished names, and the more important articles have been entrusted to such competent hands, that we regard the work as a necessity in all institutions where the study or administration of education is seriously taken.

(2) Those readers who are acquainted with Prof. Green's earlier monograph on Pestalozzi will be prepared to extend a welcome to his new book on the same theme. The whole of the former volume is included in the new one, but it has been so much revised and enlarged as to be in effect a new presentation of Pestalozzi's educational doctrines. Prof. Green was obviously well equipped for his task, and

the English student of educational ideas and systems owes him a debt of gratitude for his accurate and painstaking study of the Swiss reformer.

(3) In her "Infant Schools and Kindergartens," Miss E. R. Murray has given us a rapid survey of the movement for the education of young children, from the work of Robert Owen down to that of Dr. Maria Montessori. Miss Murray's bright and breezy style carries the reader along without effort on his part, and the personal note adds to the effectiveness of the book, for the author has lived through much of what she writes about. There are many minor inaccuracies, there are few references to original authorities, and there is no index—a bad omission in a book of this kind. Yet its sanity of judgment and its pointed criticisms and appreciations make us welcome Miss Murray's volume.

(4) The anonymous author of "A Housemaster's Letters" is to be congratulated upon having presented to his day and generation a good store of common sense about education, viewed from the point of view of the public schools. The writer evidently knows boys, and knows their parents, and knows the world. He fully exemplifies his point "that the schoolmaster is alive to the problems which confront his age, is anxious to contribute his share to the solution of them, and is not the unpractical recluse that he is sometimes assumed to be." We have tried the book on several friends, of different ages and of both sexes, and they have all enjoyed its easy style, its shrewd judgments, and its breadth of view.

(5) We agree with Prof. Howerth, of the University of California, that an apology is almost due for adding another to the long list of books that deal in a general way with the topics discussed in his "Art of Education." Still, we think that the author's decision to publish is entirely justified by the result. The treatment is orderly, and the style attractive. Moreover, some old topics are handled in a fresh and stimulating way. The chapter on ideals as a factor in education is, we think, particularly good. The book should be noted, especially by those who direct the training of teachers.

(6) In his "Educational Administration and Criticism" Dr. Hayward has given us what is perhaps so far his *magnum opus*. The book deserves cordial recognition, if only because it is the first attempt by an Englishman to place the study of educational administration upon something approaching a scientific basis. But we cannot help wishing that the author would draw the line somewhere between an academic treatise and a collection of controversial essays. He finds himself unable to get to the end even of his most useful chapters on the theory of educational statistics without another thrust at the unfortunate Mr. Holmes. And his severe trouncing of a certain Scottish professor, though it may, for aught we know, be well deserved, seems to us singularly out of place in this book. We have no objection to the sword in one hand and the trowel in the other; but we like a book to be a consistent whole.

(7) Dr. Pintner has done good service in producing a translation of Schulze's "Experimental Psychology and Pedagogy." The book does not profess to be a complete manual of experimental psychology, but rather an exposition of the methods which are specially adapted to educational purposes. It is popular rather than severely scientific in style, and it is lavishly illustrated. The book will be valued by the increasing number of investigators in the field of experimental pedagogy, and especially by readers who want a clear introduction to this branch of research. The printers and publishers have done their part well, but we do not understand why the translator's name is made much more prominent than the author's.



## FARMING AMONG THE ROMANS.

*Varro on Farming.* Translated, with Introduction, Commentary, and Excursus, by Lloyd Storr-Best. xxxii+376 pp. (Bell.) 5s.

We are glad to offer a hearty welcome to this book, which is one that is wanted, and deserves high praise for taste and scholarship. Varro is a most important writer, but nobody reads him because he is not set in open scholarship examinations. Yet the critical student of Virgil cannot really do without Varro, or indeed Columella and the other agricultural writers. But our modern students are content to cram up what Conington chooses to give them of these sources, instead of reading them for themselves. The difficulty of this treatise is not so great as novices imagine, but it is quite true that most of us are without the technical knowledge that is necessary rightly to understand him, especially in a generation of cockneys. Mr. Storr-Best appears to be thoroughly well equipped in this respect, and he gives ample notes in matters of difficulty, as also in Roman antiquities and other allusions.

The style of the translation is clear and unpretending. We have compared considerable parts of it with the Latin, and find very little to disagree with, mere trifles indeed, such as statues "dressed in gold" for gilded (*auratae*, I., 4). We can confidently recommend the book in this respect. The introduction estimates Varro's place in literature and science, and examines his sources; a list of these is given, along with other useful information, in the bibliography. Mr. Storr-Best shows that Varro is very careful in the setting of his book; the framework is a dialogue in which persons, places, and times are all studied, and they appear to correspond with known facts in a remarkable way. Varro tells us that he reproduces actual conversations, and indeed the lifelike character of the scenes makes us wish that he had given us more. In Book II. there seems to be a lacuna, and this the editor fills conjecturally in his first excursus, placing the scene in Varro's own life, when he was hunting the pirates (B.C. 67), and put in at Coryra with his fleet. This reminds us that the great literary men of antiquity were nearly all men first, who lived a real life and wrote out of their own experience, not the pallid product of Fleet Street, or the kind that scours the world in motor-cars to find local colour. A second excursus discusses the text; the editor has done original work here, and he offers us a number of conjectures, based on inductions which he makes from the facts before him. They are mostly cautious and sensible. The whole book is material for the scholar, as well as for the farmer—for Mr. Storr-Best hopes that even practical farmers may not disdain to learn something from Varro. We hope they may.

## RECENT SCHOOL BOOKS AND APPARATUS.

## Modern Languages.

*French Idioms Simplified.* By G. Carlier. v+123 pp. *German Idioms Simplified.* By O. Brandt. v+119 pp. (Melrose.) 1s. 6d. net each.—It is not quite clear what is meant by "simplified." The idiomatic expressions, English and French in parallel columns, are arranged in the alphabetical order of the chief English words (e.g., "a, abashed, about, above"). The renderings are generally sound, but occasionally the language is a little unnatural ("I was within an ace of falling flat," "as warm as a toast"), and there is nothing to indicate the stratum of language to which an idiom belongs. Thus, "dry land" cannot be rendered by "le plancher des vaches"

in every case, nor "she lost her head" by "elle perdit la boule." Misprints are not common; we have noticed *écrivez* on p. 1, *couté* on p. 4, *affair* on p. 29, *refléchissez* on p. 58, *sieste* on p. 71, *porte* (for *perte*) on p. 93, *dites* on p. 105, *jettèrent* on p. 113. At the end of the book there is a selection of proverbs. This is omitted in the "German Idioms," which in other respects is very similar. Indeed, the English part is apparently identical. The German renderings are satisfactory, as a rule, but a little more trouble might have been taken to secure the real equivalents; there are too many *Fremdwörter*, and the proof has not been corrected with sufficient care. The official orthography is not observed (*giebt, Keinem, Maass, irritiert, in's, &c.*).

*Wieland der Schmied.* Adapted from the German Saga and edited by R. E. Wilson. 72 pp. (Oxford University Press.) 1s. 6d.—The legend has been adapted by Fräulein Zeller from Schalk's "Deutsche Heldensagen." The text runs to thirty-two pages of clear, large print. The notes are in English, and deal largely with grammatical points; some renderings are also given. There seems no good reason why the notes are not numbered, or references to the lines of the text might have been given. The editor has also supplied a brief questionnaire, about two questions to the page of text, English sentences for translation, about four to the page, and German-English and English-German vocabularies. The book is therefore suitable for those who prefer to make much use of translation, and will not appeal to the teacher on reform lines.

*Lesestücke mit Fragen.* By A. E. Wilson and A. G. Denniston. 109 pp. (Murray.) 2s.—A book on the same lines as Messrs. Poole and Lassimonne's "Textes et Questions," issued by the same publisher. The main facts of elementary German grammar are given first, in a clear and generally correct form. (It is not true that all adjectives of one syllable have *Umlaut* in the comparative, and *dann* is not a conjunction.) The more difficult words of each *Lesestück* are explained in German, and on the opposite page are questions on the text and on grammar. The explanations are not always good; thus *unglücklich* is not the equivalent of *leider* (p. 28), *Mut* in *gutes Mutes* does not mean "courage" (p. 36), *rächen* is not clear from *seinem Feind weh tun* (p. 42), and *wie und wo man sein Geld macht heisst sein Geschäft* (p. 64) is not good. Misprints are far too common; apart from faulty punctuation we have noted in (for *im*) on p. 28, l. 2; *kostbares* (for *K.*) on p. 40; *dem* (for *den*) on p. 46, l. 10; *weinig* on p. 48; *dem* (for *den*) on p. 55, l. 3; *Hugel* on p. 57; *schreien* (for *schrieen*) on p. 60, l. 10; *keiner* (for *keine*) on p. 70, l. 7; *Zege* on p. 71; *Paar* (for *paar*) on p. 72, l. 8; *Fütter* on p. 83; *beschenkt* (for *ge.*) on p. 93; *einen* (for *ein*) on p. 94, l. 15. A brief German-English vocabulary has been added, "in deference to the wishes of many teachers." We hope the proof will be read more carefully before the second edition appears, and that the publishers will also issue the book without the vocabulary, in deference to the wishes of many other teachers.

## Classics.

*Tacitus, the Histories.* Translated by W. Hamilton Fyfe. 208+246 pp. (Clarendon Press.) 3s. 6d. net each vol.—"It is a translator's first duty to be lucid, and not until that duty is done may he try by faint flushes [*sic*—? flashes] of epigram to reflect something of the brilliance of Tacitus' Latin." This is Mr. Fyfe's aim, and he has attained it. The English is lucid, it is also agreeable to read, and it represents

Tacitus's meaning accurately, so far as we have tested it. To give the author's style in English is impossible, as it is in any modern language, even Italian, but a little touch of rhetoric would have added to the value of this. Mr. Fyfe might have said something more of the Latin style. He praises it, by implication and expressly, in very high terms; but, with great merits, it is a bad style, affected and therefore obscure. There is rarely any doubt of the meaning, but the form of words rather hinders than helps the reader; but its compression gives it strength, its rhetorical arrangement gives it brilliancy, and it undoubtedly reflects the mind of the author in an extraordinary way. Mr. Fyfe points out that the rhetorical was valued in Rome above all things in literary work, and by this he accounts for the author's way of colouring events. But this will not justify anyone in consistently attributing the worst motives for every act, and even where honourable motives are possible or likely, suggesting evil by innuendo. This said, we can with pleasure recommend the book to students.

*Greek Legends.* Told by Mary Agnes Hamilton. 192 pp. (Clarendon Press.) Illustrated. 2s.—These are some of the chief Greek legends, as thus: Gods and Heroes, Theseus, Thebes, Perseus, Heracles, Argonauts, Meleager, Bellerophon, Trojan War, House of Athens, Odysseus—too much for one book, unless shortly told as an introduction to the study. The stories are told in an unpretending way, and the book may be recommended. The pictures are taken from Greek works of art, and are good; but probably children would prefer scenes to statues. But perhaps this book is meant for older readers in modern utilitarian schools. May they read it!

*Companion to Roman History.* By H. Stuart Jones. 472 pp. (Clarendon Press.) 15s. net.—This book, planned on the same lines as Barnard's "Companion to English History," treats of the same subjects in eight chapters—(i) an introduction, dealing with the earliest settlement of Rome and her subsequent development; (ii) architecture; (iii) war; (iv) religion; (v) production and distribution; (vi) money; (vii) public amusements; and (viii) art. The characteristic feature of the book is that it rests on an archaeological basis, and deals only with such aspects of Roman life as can be illustrated from material remains. It is therefore abundantly illustrated with eighty plates, sixty-five other illustrations, and seven maps, and each chapter is provided with a short bibliography. We have studied two or three of the chapters with great profit. The facts are freshly put, up to date, and accurate, and many of the illustrations are not easily available elsewhere. The work is emphatically to be recommended for the school library, and would be an excellent volume for a prize.

*School Latin Classics: New Junior Latin Reader.* By A. J. Tate. xiv+233 pp. (Clive.) 2s.—This is "a graduated course of lessons in translation from Latin into English for pupils of from thirteen to fifteen years of age." The introduction contains an "Outline of Roman History" in four pages, and an "Outline of Roman Literature" in ten pages! There are seventy-four extracts from sixteen different authors, with some oral exercises. The reference of each extract is given except 64 and 65. The author says, "snippets have been carefully avoided," but as the average length of each passage, including the oral work, is less than two pages, this is a darkening of words. Extracts so short are snippets, and a fact cannot be disproved by denial. Long vowels are marked in the vocabulary, including the long "i" of the perfect. The pieces are interesting and varied.

*Dent's Latin Readers: Cornelia.* By E. V. Arnold and J. W. E. Pearce. 117 pp. (Dent.) 1s. 4d.—"This book offers material for the second year's course in Latin in secondary schools in accordance with the scheme proposed by the curricula committee of the Classical Association in 1907." It may well be a first reading book, whether in the second or third year of Latin. It consists of a series of thirty-two stories from Roman legend and history, specially written, supposed to be told by Cornelia, the mother of the Gracchi, to her children. They are both interesting and well told, and create a proper atmosphere. As the authors do not, like some of the more advanced advocates of the newer methods, disdain vocabularies, the book can easily be used by teachers of the old style. The two vocabularies are based upon Dr. Arnold's well-known idea of a standard vocabulary for beginners. The general vocabulary contains all the commonest words in the language (whether in the book or not) which pupils should get to know in their earliest years; the special vocabulary contains words in the book but not in the general vocabulary. All long quantities are marked in the vocabulary. Why not also in the text? *Naturā* on p. 2 seems an accident.

*Latin Vocabularies for Preparatory Schools.* By S. H. J. Russell. 55 pp. (The Year Book Press.) 2s.—"Young boys, according to my experience in preparatory schools, obtain their Latin vocabulary in too haphazard a manner." The author therefore has made an attempt, based upon his experience, to systematise the vocabulary, and gives in this book work to be spread over four years. It is interleaved to enable boys to add notes and words of their own. Quantities are marked, but not on any system—e.g., *filia, p̄atria, milēs, p̄edes, p̄ēs, n̄ubes, s̄edes, comes.*

*School Latin Classics: Caesar, Gallic War.* Chapters xxv.–lviii. By Lt. M. Penn. xvi+58 pp. (Clive.) 1s.—This part of Cæsar's "Gallic War," dealing with the dramatic events following the revolt of the Belgæ, is well suited for school purposes. The author recommends it for lower and middle forms, but it contains too much *oratio obliqua* for the lower classes. The introduction, while lengthy for the size of the book, attempts too much, and is in consequence not clear in places—e.g., in the account of the *tormenta* and *acies*—and in giving the causes of the successes of the Romans nothing is said of their superior discipline and morale. The notes are of the usual character. Long quantities are marked in the vocabularies, but not in all cases consistently—e.g., three consecutive substantives are marked thus: *caedēs, caelestes, caespēs.* The long "i" of the perfect is never marked. The book has a map. The title-page has a misprint "28" for "58."

#### English.

*English Literature and the Classics.* Edited by G. S. Gordon. 252 pp. (Clarendon Press.) 6s.—For a long time we have awaited a volume that would try to point out our debt to Greece and Rome. Prof. Cherton Collins wrote on the subject well, as one would expect. But now nine scholars have contributed a lecture apiece, and Mr. Gordon has edited their work. These nine lectures were delivered to students of the modern by students of the ancient, and as an introduction to the much-neglected subject the volume seems to us to be unique. Greek and English tragedy is written on by Prof. Gilbert Murray; Platonism in English poetry by Mr. Steuart; Theophrastus and his imitators by the editor; the Greek Romances by Mr. Phillimore; Ciceronianism by Mr. Clark; Virgil by Mr. H. W. Garrod; Ovid and Romance by Mr. Owen; Satira and Satire by Mr.

Tiddy; and Senecan Tragedy by Mr. Owen. The book teems with suggestion, and is alive with learning easily, sometimes flippantly, worn, and not a single essay is there which is not a little masterpiece. It continually takes its torch to light it at the old fires and then brings it back to illumine later days; and such diverse writers as Bishop Hall, Shelley, William Langland, Dr. Johnson, Shakespeare, Gray, and the collectors of the Thousand and One Nights are drawn into the all-embracing web of Greece and Rome. But what is chiefly new is the scholarly outlook from the Pisgah of the classics on all succeeding work, and the manifest belief, "Why, sirs, they do all this as well as we." The religious basis of tragedy and our own erotic basis, the spirituality of Plato yesterday and of Eucken to-day, the clear, clean work of Theophrastus, and the sheer force of La Bruyère, the majesty of Ciceronian and of Burckian rhythm, the countless debts to Ovid and poor forgotten Seneca, are all brought home, and though Herodotus, Thucydides, Aristotle, and Horace are not here (we cannot have everything), perhaps they may be treated of in a second series. We may quarrel with the saying that Virgil borrowed no more than moderns do, or with the statement that the Roman Empire was based on cant and self-deception, or with the amazing criticism that Dr. Johnson was deaf to prose-music, or with the suggestion that Odysseus was always middle-aged; but these are nothings when we consider the joyous, confident, uplifted tone that runs through every essay. The reader, closing the book, may well, in reference to Greek and Roman literature, echo his college grace, "Agimus tibi gratias Domine pro benefactoribus nostris."

*The Commedia dell' Arte: A Study in Italian Popular Comedy.* By Winifred Smith. 290 pp. (Frowde, for the Columbia University Press.) 8s. 6d.—Although the author supplies a long bibliography, the subject of the volume is almost new to English literature; the influence of popular comedy is, of course, nothing new. Miss Smith is, we gather, no believer in the theories which see Atellane fables and Pontius Pilate in our modern harlequins and Punches, preferring to believe that the zany, the charlatan, and the mountebank were bound to evolve in Italy and to be playable only by Italians. We wish this learned book had given us a few of the old scenes and less of the titles of plays; in the chapter on Elizabethan drama this would have been very helpful. It is not possible to overpraise the practice of the Columbia University Press in sending out valuable monographs, and the choice of them is excellent. There is a wealth of work to be undertaken by any English university which cares to follow such an example.

#### History.

*The Personality of Napoleon.* By J. H. Rose. viii+307 pp. (Bell.) 5s. net.—"He who spends his time mainly in affairs of government will fascinate a thinker, who views the world mainly from the study," says Dr. Rose on p. 209. We think this might be taken as the motto of these lectures, delivered at Boston in February, 1912, for Dr. Rose in his study has certainly been fascinated by the "mighty soul" as he calls him (p. 245). In eight lectures, arranged mainly in chronological order, he sets forth the changing character of his hero as man, Jacobin, warrior, lawgiver, emperor, thinker, world-ruler, and as exile. In all of them he admires him, but is compelled by the logic of facts constantly to admit the presence of flaws, and to those of us who do not admire Napoleon in any of his characters it would be easy, from the pages of this book, to make out a good case for our view of the matter. There would

be no end to the discussion thus raised, for Napoleon, like Mary Queen of Scots, will always have champions and detractors, the woman because of the tragedy of her story, the other because of the great changes he made in history. Whatever our opinion, however, these lectures are well worth reading. They will help the student to understand the period, and they abound in quotations of sayings which are not easily accessible.

*The Renaissance.* By J. B. Oldham. x+132 pp. (Dent.) 1s. net.—An excellent account of the great movement of the fifteenth and sixteenth centuries, in which the reader will learn the circumstances out of which the Renaissance grew, the reasons for the difficulty in dating either the beginning or the end thereof, its various phenomena of geographical discovery and of development in the art of politics, in scientific and literary advance, in the knowledge of the classics, in the use of the vernacular, and, finally, in philosophy, art, and religion, stopping short, however, and quite rightly, at the beginning of the Reformation. There are six good illustrations of the pictures of the period, and of Michelangelo's "Moses," on all of which there are comments in the text, and an index of two pages. One small slip we have noticed. Surely it is Judas, not Pilate, who is the companion of Brutus and Cassius in the Inferno.

*Pitman's Dramatised History.* By D. Jones. Junior Book, 96 pp. 7d. net. Intermediate Book, 116 pp. 8d. net. Senior Book, 190 pp. 10d. net. (Pitman.) A Play Book of History. By A. A. Whiddington. 96 pp. (Blackie.) 1s.—We have all in our childhood played sometimes at "French and English," making the title serve as excuse for letting off our superfluous physical energy and our instinct for making believe. In these scientific days, teachers are exploring the child, and instead of letting it grow by itself, are using all its powers for the purpose of education. The books we have mentioned are symptomatic of this new search. Both authors have devised scenes, illustrated them abundantly with pictures, and either put words into the mouths of their pupils or left them to fill in blanks, in order that they may understand better their history lessons. Will they? Of course, the question must be solved by experiment, but the results are naturally difficult to record, and our own suspicion is that the youngsters will—of course, in silence—resent the hollowness of their "play" when once it is taken seriously by the "grown-ups," and exposed to their gaze. If you do watch the little ones, do not let them know it. They are as shy as the birds when Mr. Kearnton tries to catch their notes on his phonograph. And if the play is to be done at all, care must be taken to have great accuracy. Yet, in a glance through these books, we have found two serious errors. In Mr. Jones's intermediate book (pp. 57-8) he represents the trial of Hampden as a criminal one, though only before judges, and sends Hampden to prison for "contempt of the King's law," and in his senior book (pp. 102-4), he makes the judges pronounce the verdict (instead of a jury), and the crime with which the bishops are charged is not the publication of a libel, but "disobedience to the King."

*The Story of the East Riding of Yorkshire.* By H. B. Browne. xvi+352 pp. (Brown and Sons.) 1s. 8d. net.—This little book differs from most of such county stories in that the author confines himself almost entirely to the history of his Riding. Most of them give much general English history, and then follow out its working in their district. Mr. Browne, on the contrary, gives scarcely more than a reference to what will be found in the ordinary text-books, and

so saves space for more local details. Especially would we direct attention to his chapter on the "folk-speech of the East Riding," which will interest and instruct "foreigners," and rejoice the hearts of all local patriots. For Mr. Browne there demonstrates with quotations that this speech is not merely a "dialect," but has as much, if not more, claim to be the original Anglo-Danish speech of our forefathers as that of "educated" people. The story is well told, geology, pre-history, architecture, all coming in for treatment, as well as the more obvious facts of social and political life. It should be read by every East Ridinger, of all ages, and by many others.

*The Story of England.* Part iii., 1603-1760. By W. S. Robinson. 267 pp. (Rivingtons.) 2s.—This is the third part of a history for junior forms, and a fourth is to follow. The paging is continuous throughout. It is an excellent little history, much above the average in clearness, and apt illustrations of critical points. There are also good pictures and maps, but as yet no index. Let us hope Mr. Robinson will give one in his part iv. Two small points for future editions: Barbon's Christian name was not "Praise-God"; that was a Cavalier jest of bad taste. His name was Praise. Milton's "Paradise Lost" is not now in twenty-four books, but in twelve.

#### Geography.

*Visual Geography: A Practical Method of Teaching Introductory Geography.* By Agnes Nightingale. Twenty-three page outline pictures for colouring. (Blackie.) 6d.—Little children like to use a brush and colours, and there can be little but praise for the idea involved in Miss Nightingale's attempt to utilise this form of activity as an introduction to geography. The twenty-three outlines refer to rainfall and rivers, typical land forms, and typical environments, and in each case a few sentences specify the geographical value of the pictures, while suggestions are given for colouring the outlines. One or two of the outlines might be improved in their geographical aspect in a later edition, and the publishers would be well advised to provide paper which is better suited to the use of water-colours.

*Chamber of Commerce Atlas.* 128 maps, &c. (Philip.) 6s. net.—The "Chamber of Commerce Atlas" contains some of the features which made the "Atlas of the World's Commerce" valuable, as well as maps on the lines of those in the "Harmsworth Atlas," showing commodities, communications, &c. There is a boldly printed gazetteer index of about 100 pages, and a commercial compendium of the world's chief commodities. Some of the maps are so detailed as to be of little value to anyone but an expert, who would desire to have additional information about the relative importance of the various places to which the same symbol is attached.

TEACHERS of geography are compelled to face the problem presented by the Ordnance Survey map. At what point in the geography course should it be introduced? What preliminary preparation should be provided? Which sheets should be used? These are some of the matters which each teacher has to settle for himself. When they have been determined, the teacher is met by the question of the provision of a general scheme of interpretation of the Ordnance sheet; so that, from the complete and detailed study of one sheet under his active supervision, the pupils may be able to pass to similar studies of other sheets without his continuous assistance. Many valuable hints on all these difficulties are contained in a little brochure, *Ordnance Survey Maps: their Meaning and*

*Use,* written by Dr. Marion Newbigin, and published by Messrs. W. and A. K. Johnston, Ltd., at one shilling. Miss Newbigin deals generally with the series of one-inch maps, and passes to the consideration of eight typical sheets. These refer to parts of the Grampians, of the Pennines and the Cumbrian group, and of the lowlands of the Scottish Rift Valley, the Cheshire Gate, and the Medway estuary.

#### Science and Technology.

*Makers of British Botany: a Collection of Biographies by Living Botanists.* Edited by F. W. Oliver. Pp. 332. (Cambridge University Press.) 9s. net.—The lives and work of about twenty British botanists, from Robert Morison, who died in 1683, to Marshall Ward, who died in 1905, are here described by leading representatives of botanical science. The book is based upon ten lectures delivered at University College, London, in 1911, and additional chapters have been written to make the collection of biographies more complete. Prof. F. W. Oliver summarises the main points of the book in an interesting introduction. Among the botanists included are Grew, the plant anatomist, who divined the functions of sex organs of plants, but left the experimental proof of his views to Camerarius; Robert Brown, who worked out the mechanism of fertilisation; the two Hookers; J. S. Henslow, the pioneer of nature-study and educational methods of teaching science in general; Sir J. H. Gilbert, whose work with Lawes at Rothamsted is renowned wherever agricultural science is studied; and Williamson, who by investigation and polemics did more than anyone else to promote the study of fossil plants. The volume is not a popular history of botanical science, and a few more sparks of human fire would have made it more interesting to men of science who are not botanists. It is, however, a valuable conspectus of British contributions to botanical knowledge in many directions, and all serious students of plant-life should read it for profit as well as for pleasure.

*Botanical Experiments for Schools.* By Ida H. Jackson. viii+88 pp. (Blackie.)—Many teachers of botany fail to realise how much sound practical work on the physiology of plants may be done with extremely simple apparatus. They are apt to assume that the expensive and elaborate instruments found in college laboratories are necessary for any work of real value, and the idea is encouraged by every catalogue of botanical apparatus which falls into their hands. The result is that one of the most interesting and educationally valuable sides of botany is unduly neglected in the majority of elementary classes. Miss Jackson's little book should do much to remedy this state of things. It gives instructions—with illustrative drawings by Dorothea Cowie—for some thirty easy experiments. These are selected so carefully that they include direct observation of all the fundamental functions of green plants, and at the same time involve more or less reasoning on the part of the experimenter. Their chief distinction is, however, that they can all be set up with simple and inexpensive appliances, and carried out by the pupils themselves. The author modestly describes the course as a collection of experiments from various sources. She has, however, introduced many modifications which render the exercises more manageable by a class of beginners, and has thereby earned the gratitude of teachers of botany.

*A Nature Study Guide.* By W. S. Furneaux. xv+293 pp. (Longmans.) 3s. 6d. net.—Teachers will find this a valuable source of information which they

can use in framing their courses of nature-study. The author arranges the suggested observations according to seasons, and in each case enumerates the principal points of interest in the various animals and plants selected for study. In many instances these are illustrated by excellent photographs or drawings. The book also contains useful information and suggestions on the management of school gardens, aquaria, &c. In his hints to teachers, Mr. Furneaux recommends that questions should be asked "with the object of encouraging the children to think out simple problems with regard to the habits and mode of growth of the thing before them, and to work out the uses and functions of its various parts." It is regrettable that the book—excellent as it is on the observational side—does not develop more definitely this idea of using observation as a stimulus of logical thought, for it is precisely in such little problems that the major value of nature-study lies, and in devising them that the ordinary teacher finds most difficulty.

*Characteristics of Existing Glaciers.* By William H. Hobbs. xxvi + 301 pp. (New York: The Macmillan Company.) 13s. 6d. net.—An extensive literature on the subject of glaciers exists already, but, as Prof. Hobbs points out, by far the largest number of glaciological observations have been made in the Alps, where but a single type of small glacier is found. Mountain glaciers, however, differ in many important respects from the great continental ice-sheets of the polar regions, and there was need for a general survey of the subject in the light of recent exploration. The handsome volume before us is divided into three approximately equal sections, dealing respectively with mountain glaciers, Arctic glaciers, and Antarctic glaciers, all liberally illustrated by excellent photographs, contoured maps, and diagrams. In the first section, interest centres chiefly in the vexed question of the origin of the armchair-shaped depressions known as cirques. According to Prof. Hobbs, the present topography of glaciated mountains is largely the result of cirque cutting, and he adduces much interesting evidence for this conclusion. In the second section of the book, the continental glacier of Greenland naturally receives a large share of attention, and the discoveries of Peary, Nordenskjöld, and Nansen furnish materials for generalisations and speculations of great interest. Part III. contains an equally valuable summary of the results obtained by Shackleton, Scott, and others in Antarctica, and these form the basis of an ingenious theory of the part which the "anticyclonic air engine" plays in feeding the ice-sheet. The brilliant achievements of recent polar expeditions have stimulated public interest in the great ice-sheets of the world so much that the appearance of the volume is especially opportune.

*A First Book of Chemistry.* By E. Barrett and T. P. Nunn. 124 pp. (Black.) 1s. 6d.—Dr. Nunn explains in the preface that this book is based on a scheme of instruction drawn up by himself when science-master at the William Ellis School. The scheme is heuristic, or perhaps suggestively heuristic—that is to say, the authors give a great deal of information which might be educed by the perfect teacher from the perfect child. As a further assistance, however, they provide footnotes, such as: "Sodium carbonate  $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$  loses water on exposure to the air, and becomes  $\text{Na}_2\text{CO}_3 \cdot \text{H}_2\text{O}$ , thereby breaking into numerous small crystals which form an opaque instead of a transparent mass." Such footnotes are carefully labelled "For the teacher only," lest the growing mind of the pupil might peradventure assimilate knowledge first-hand. It seems neces-

sary in the various forms of heuristic mania to give extraordinary names to common substances. For example, on p. 23, the gas evolved when hydrochloric acid is added to washing soda is described as soda gas. By all means give the names which the earliest investigators used, such as fire-air, fixed air, spirit of salt, oil of vitriol; but it is surely too late in the day to invent new names and then discard them forty pages further on.

The chapter on the manufacture of linoleum, which follows rusting and precedes oxygen, is somewhat of a puzzle. It apparently serves to emphasise the behaviour of a drying oil, and as such, of course, imparts useful knowledge, but the sandwiching of such informative material between the delightfully researchy chapters above-named comes as a shock. Some of the experiments are impracticable for boys, such as the eudiometric determinations of the composition of water and carbon monoxide, while on the other hand the actual illustrations given of the laws of combination should surely be made use of to give the student some idea of the atomic theory, and (*horribile dictu*) formulæ and equations.

*Practical Agricultural Chemistry.* By S. J. M. Auld and D. R. Edwards-Ker. 243 + xxii pp. (Murray.) 5s. net.—This manual is intended as a practical handbook in agricultural chemistry for students working through courses of instruction for the London B.Sc. degree in agriculture, and other examinations of a similar type. The authors have produced an excellent book, which will have a wider sphere of usefulness than the somewhat narrow field of classroom and examination work. It is a matter of congratulation that this country, which was a pioneer in the scientific study of agriculture, should be producing a race of agricultural chemists, and attracting into the universities and colleges a class of men upon whose knowledge of the theory and practice of farming our very existence as a nation depends. It frequently happens in a book of this kind that the technical aspect overshadows the chemical, but in this case the chemical side of agricultural science is insisted upon, and the student who works through the excellent sections on plant constituents, soils, fertilisers, feeding-stuffs, dairy products, waters and soaps, will not only have had his attention directed to the practical importance of chemical analysis, but will recognise that innumerable problems are awaiting solution, and, what is more, will be in a position to attack them. Surely this is the right spirit to inculcate.

Finally, a word of praise must be accorded to the general get-up of the book. The formulæ are well displayed, and the illustrations are both clear and accurate.

#### Miscellaneous.

MESSRS. T. C. AND E. C. JACK, of London and Edinburgh, have just issued twelve more volumes in their series of "The People's Books," bringing the number of works published up to sixty. Attention has already been directed in these columns to this remarkably cheap series (each volume contains between 90 and 100 pages, and is published at 6d. net), and on this occasion we need do no more than refer to a few of the volumes before us which are likely to appeal more especially to teachers. Perhaps the cheapest work in the series is the "Atlas of the World," by J. Bartholomew, which contains thirty-nine coloured maps, executed with the usual care of this cartographer. Another volume of interest and value is that entitled "The Bible and Criticism," by Profs. Bennett and Adeney, not the least valuable part of which is the bibliography it contains of larger

works on the subject of Biblical criticism. The series contains many works relating to science, written, for the most part, by specialists. In this connection attention may be directed to "The Structure of the Earth," by Prof. T. G. Bonney; "Zoology: The Study of Animal Life," by Prof. E. W. MacBride; "The Evolution of Living Organisms," by E. S. Goodrich; "Weather Science," by R. G. K. Lempfert; and "Navigation," by W. Hall. In the literary section a noteworthy book is that by Dr. A. Compton-Rickett, entitled "A History of English Literature." Other volumes in this class are "Tennyson," by A. Watson; "Wordsworth," by Miss R. Masson; and "Thomas Carlyle," by the Rev. L. M. Watt, all of which are written with insight and care.

The study of these small volumes should do something to stimulate a desire for knowledge on the part of many unable to afford more pretentious and expensive works.

## EDUCATIONAL BOOKS PUBLISHED DURING JANUARY, 1913.

(Compiled from information provided by the Publishers.)

### Modern Languages.

R. Loewe: "Germanic Philology." Translated by Dr. J. D. Jones. 192 pp. (Allen.) 4s. 6d. net.

"Key to Arnold's Modern German Course." By F. W. Wilson. (Edward Arnold.) 3s. 6d. net.

Jules Gérard: "Le Tueur de Lions." Edited by Clémence Saunois. (Blackie's Little French Classics.) 48 pp. (Blackie.) 4d.

Molière: "Monsieur de Pourceaugnac." Edited by Sydney H. Moore. 80 pp. (Blackie.) 10d.

"Cahier Français Illustré pour les Enfants." Compiled by W. K. Cornell and illustrated by Isabelle Brittain. 20 pp. (Dent.) 8d.

"Retranslations and Exercises based on 'Contes et Récits.'" By M. F. Hanlet. 78 pp. (Harrap.) 6d.

"Ulysse chez les Cyclopes." By Octave Simone. Edited, with Notes, Exercises, and Vocabulary, by T. H. Bertenshaw. (Longmans.) Pupils' Edition, 6d.; Teachers' Edition, with Translations of the Exercises and Additional Notes, 8d.

"Test Papers in Elementary German Grammar." By W. H. David. 56 pp. (Oxford University Press.) 1s. 6d.

Perrault: "Les Fées et Cendrillon." Illustrated, with Vocabulary. 32 pp. (Relfe.) Paper, 3d.; cloth, 4d.

### Classics.

"Cambridge Greek Testament for Schools and Colleges. The Second Epistle General of Peter and the General Epistle of Jude." By Montague Rhodes James. lx.+46 pp. (Cambridge University Press.) 2s. 6d. net.

"Cambridge Greek Testament for Schools and Colleges. The Epistle of Paul the Apostle to the Romans." By R. St. John Parry. xl+244 pp. (Cambridge University Press.) 3s. 6d. net.

"Norma Elegiaca. A Standard for the Writing of Ovidian Elegiacs." Selected by R. L. A. Du Pontet. 28 pp. (Clarendon Press.) 1s. net.

"Perse Latin Plays." By W. H. S. Jones and R. B. Appleton. 68 pp. (Heffer.) 1s. net.

### English: Grammar, Composition, Literature.

"Black's Sentinel Readers," Book VI. Edited by E. E. Speight. 254 pp. (Black.) 1s. 9d.

Cervantes: "Don Quixote Abridged, or The Spirit of Cervantes." Edited by W. H. D. Rouse. 124 pp. (Blackie.) 6d.

"English Patriotic Poetry." By L. Godwin Salt. viii+90 pp. (Cambridge University Press.) 6d. net.

"Cassell's Select Poetry Book (for Juniors)." Compiled by P. Granville Edge. 64 pp. (Cassell.) Limp cloth, 4d.

Macaulay: "Essay on Milton." Edited, with Introduction and Notes, by P. T. Creswell. 108 pp. (Clarendon Press.) 2s.

Scott: "Lay of the Last Minstrel." (Oxford Plain Texts.) 98 pp. (Clarendon Press.) Cloth, 8d.; paper, 6d.

"Greater Rome and Greater Britain." By Sir C. P. Lucas. 192 pp. (Clarendon Press.) 3s. 6d. net.

"Exercises in Dictation and Composition." N. Notman. 168 pp. (Clarendon Press.) 2s.

"A Hero of Old France." The Song of Roland translated and adapted from old French texts. By John Harrington Cox. 160 pp. (Harrap.) 9d.

"Longer Narrative Poems (Nineteenth Century)." Edited by George G. Loane. (English Literature for Secondary Schools.) 120 pp. (Macmillan.) 1s.

Shakespeare, The Tudor: "All's Well that Ends Well." Edited by J. L. Lowes. 172 pp. 1s. net.

"The Taming of the Shrew." Edited by F. Tupper. 154 pp. 1s. net. (Macmillan.)

The Children's Classics: Primary—No. 8, "Nursery Rhymes." Selected by A. E. P. No. 9, "Tales from Grimm." Told anew by Alice M. Bale. No. 10,

"Little Red Riding Hood and Jack and the Beanstalk." Told anew by Alice M. Bale. 32 pp. each. Sewed, 2d.; limp cloth, 3d. each. Junior—No. 19,

"Poems of Childhood." Selected by A. E. P. 48 pp. Sewed, 2½d.; limp cloth, 3½d. Intermediate I.—No. 32, "Scenes in Fairyland II." By Canon Atkinson. (Adapted.) 64 pp. Sewed, 3d.; limp cloth, 4d.

Senior—No. 52, "The Talisman." By Sir Walter Scott. (Abridged.) 96 pp. Sewed, 4d.; limp cloth, 5d. (Macmillan.)

"Poems by Elizabeth Barratt Browning." (World's Classics.) 436 pp. (Oxford University Press.) 1s. net.

Longfellow: "Hiawatha, The Courtship of Miles Standish, and other Poems." (World's Classics.) 404 pp. (Oxford University Press.) 1s. net.

"One Hour Exercises in English Grammar." By R. Harris. 30 pp. (Relfe.) 6d.

### History.

"Church and Manor." By S. O. Addy. 506 pp. (Allen.) 10s. 6d. net.

"Thames-side in the Past: Sketches of its Past." By F. C. Hodgson. 420 pp. (Allen.) 12s. 6d. net.

"History of England." New and Revised Edition. By H. O. Arnold-Forster. 850 pp. (Cassell.) 5s. net.

"Tudor England, 1485-1603." By Ada Russell. (Harrap's Story of England Series.) 256 pp. (Harrap.) 1s. 6d.

"Biblical History for Schools: New Testament." By F. J. Foakes Jackson and B. T. Dean-Smith. xii+260 pp. (Heffer.) 3s. 6d. net.

"A History of Europe." By Arthur J. Grant. With Maps and Coloured Chart. (Longmans.) 7s. net.

"The Life of Nelson." By Geoffrey Callender. With Maps, Plans, and Illustrations. Prize Edition. (Longmans.) 2s. 6d. net.

"A Source-Book of Ancient History." By G. W. and L. S. Botsford. 604 pp. (Macmillan.) 5s. 6d. net.

### Geography.

"An Elementary Historical Geography of the British Isles." By Mabel S. Elliott. 172 pp.+60 illustrations and diagrams. (Black.) 1s. 6d.

Cambridge County Geographies: "Middlesex." By G. F. Bosworth. xii+166 pp. (Cambridge University Press.) 1s. 6d.

"Ordnance Survey Maps, their Meaning and Use." By M. I. Newbiggin. 126 pp.+6 diagrams. (Johnston.) Cloth, 2s. net; paper covers, 1s. net.

"Map of Palestine, Contoured, Showing Places as Identified by Recent Investigations." (Johnston.) 1s. per dozen net.

"Earth Knowledge." Book III. 80 pp. (McDougall.) Limp cloth, 5d.

"Vade Mecum of Commercial Geography." By H. J. Bower. 64 pp. (Relfe.) 9d.

#### Mathematics.

"A Text-book of Elementary Trigonometry." By R. S. Heath. 220 pp. (Clarendon Press.) With and without answers, 3s. 6d.

"A Text-book of Mathematics and Mechanics." By Charles A. A. Capito. xv+398 pp. (Griffin.) 12s. 6d. net.

"Calculations on the Entropy-Temperature Chart." By W. J. Crawford. 74 pp. (Griffin.) 2s. 6d. net.

"Elementary Manual of Applied Mechanics." By Andrew Jamieson. xix+452 pp. (Griffin.) 3s. 6d.

"A New Geometry." Parts I. and II. By S. Barnard and J. M. Child. 334 pp. (Macmillan.) 2s. 6d.

"Macmillan's Reform Arithmetic." Girls' Edition. Teacher's Book V. By P. Wilkinson and F. W. Cook. 96 pp. (Macmillan.) 9d.

"Practical Geometry for Junior Examinations." By H. J. Hodgson. 80 pp. (Relfe.) 1s. 6d.

#### Science and Technology.

"The Petrology of the Sedimentary Rocks." By F. H. Hatch and R. H. Rastall. 444 pp. (Allen.) 7s. 6d. net.

"Structural Engineering." New and Revised Edition. By A. W. Brightmore. (Cassell.) 10s. 6d. net.

"The Plant Alkaloids." By T. A. Henry. 466 pp. (Churchill.) 18s. net.

"Elementary Physical Optics." By W. E. Cross. 312 pp. (Clarendon Press.) 3s. 6d.

"A Text-Book of Rand Metallurgical Practice." Vol. II. By C. O. Schmitt. xxii+438 pp. (Griffin.) 21s. net.

"Motor-car Mechanism and Management." By W. Poynter Adams. xviii+250 pp. (Griffin.) 5s. net.

"Celluloid: its Manufacture, Applications, and Substitutes." By Masselon, Roberts, and Collard. xx+356 pp. (Griffin.) 25s. net.

"The Mineralogy of the Rarer Metals." By Edward Cahen and William Ord Wootton. xxviii+211 pp. (Griffin.) 6s. net.

"Electrical Photometry and Illumination." By Hermann Bohle. xi+222 pp. (Griffin.) 10s. 6d. net.

"The Gas Turbine: Theory, Construction, and Records of the Results obtained from Two Actual Machines." By Hans Holzwarth. Translated by A. P. Chalkley. viii+140 pp. (Griffin.) 7s. 6d. net.

"Evolution of the Internal Combustion Engine." By Edward Butler. With 188 illustrations. xiv+237 pp. (Griffin.) 8s. 6d. net.

"A Manual of Marine Engineering." By A. E. Seaton. xxviii+966. (Griffin.) 28s. net.

"A Treatise on Mine Surveying." By Bennett H. Brough. xvi+372 pp. (Griffin.) 6s. net.

"A First Book of Experimental Science." Arranged by W. A. Whitton. from "Lessons in Science," by R. A. Gregory and A. T. Simmons. (First Books of Science.) 146 pp. (Macmillan.) 1s. 6d.

"Achievements of Chemical Science." By James C.

Philip. (Readable Books in Natural Knowledge.) 226 pp. (Macmillan.) 1s. 6d.

"Elementary Biology: Animal and Human." By J. E. Peabody and A. E. Hunt. 230 pp. (Macmillan.) 4s. 6d. net.

"An Introduction to Zoology." By R. Lulham. 474 pp. (Macmillan.) 7s. 6d.

"Practical Agricultural Chemistry." By S. J. M. Auld and D. R. Edwardes-Ker. xxiv+244 pp. (Murray.) 5s. net.

#### Pedagogy.

"Experimental Psychology and Pedagogy." By Prof. R. Schulze. Translated by Prof. R. Pintner. 392 pp. (Allen.) 15s. net.

"Voice Training for Choirs and Schools." By Cyril Bradley Rootham. xlii+110 pp. (Cambridge University Press.) 4s. net.

"Voice Training for Choirs and Schools. Exercises for the Use of Pupils." (Reprinted from the large volume.) By Cyril Bradley Rootham. iv+74 pp. (Cambridge University Press.) 1s. 6d. net.

"The Life and Work of Pestalozzi." By J. A. Green. 402 pp. (Clive.) 4s. 6d.

"Where Education Fails." By Preston Weir. 114 pp. (Ralph, Holland.) 1s.

"Mental Tests for Backward and Defective Children." By W. H. Winch. (Ralph, Holland.) 1½d. net.

"Plays for Pedagogues." By F. H. Hayward. 96 pp. (Ralph, Holland.) 1s. 6d. net.

#### Art.

"The Art Treasures of Great Britain." Part I. Edited by C. H. Collins-Baker. (Dent.) 1s. net.

#### Miscellaneous.

"Personal Hygiene for Girls." By Mary Humphreys. 160 pp. (Cassell.) Cloth, 1s. 6d., illustrated.

"Ballads for Little Folk." By B. J. Hancock. 20 pp. (McDougall.) Limp cloth, 1s. 3d. net.

"The Directory of Women Teachers, 1913: Universities, Colleges, Schools, &c." lvi+328 pp. (The Year Book Press.) 5s. net.

"The Laws which Govern the Course and Destinies of Religions." Anonymous. xx+226 pp. (The Year Book Press.) 7s. 6d. net.

"Songs of the Dead End." By Patrick MacGill (The Navy Poet). viii+168 pp. (The Year Book Press.) 3s. 6d. net.

### CORRESPONDENCE.

*The Editors do not hold themselves responsible for the opinions expressed in letters which appear in these columns. As a rule, a letter criticising any article or review printed in THE SCHOOL WORLD will be submitted to the contributor before publication, so that the criticism and reply may appear together.*

#### The Direct Method of Teaching Classics.

I AM sure the advocates of the "direct" method do not wish to misrepresent those who follow other systems. I can assure Mr. R. P. Dutt, whose letter in your last issue I read with great interest and a good deal of sympathy, that I have had many boys under me who have read Homer at the age of thirteen with, I believe, a good deal of genuine enjoyment; that some of them had only learnt Greek for about a year (of roughly four and a half hours a week), and that I have now a boy—older, it is true, but by no means a genius—who is reading, in his second term

of studying Greek, a book of Xenophon and the "Medea" of Euripides, and doing them well. I can also assure him that long before the direct method was heard of Homer was read precisely in the way he describes—"save for a few necessary explanations reading on rapidly and pleasantly"—though it seems to me quite possible even for young boys to combine a training in accuracy with enjoyment of a work as literature. Parsing of the old-fashioned type was beginning to vanish in my schooldays—nearly forty years ago—and years before Dr. Rouse began his crusade the custom prevailed here, and I doubt not in many other schools as well, that no grammar should be learnt before it was needed in practice. When I taught the beginners in Greek they started on translation in their second week, as soon as they had learnt *σοφίης* and the present tense of *λύω*; and it was a good deal of labour to concoct simple stories for them—for isolated sentences were barred—until the publication of Chambers's "Greek War of Independence" did much to solve the difficulty.

I have not the slightest desire to attack the oral method—though in all teaching I think it is more a question of the man than his method—but I feel bound to protest when I am told that by it alone can interest be secured and authors read at an early age. As to its use in the teaching of grammar and composition I have as yet an open mind.

A. C. PRICE.

Leeds Grammar School.

I TOOK the opportunity of hearing Mr. Mainwaring's paper on the direct method of teaching Latin, announced in your issue for February, and of listening to the lesson which preceded it. The whole evening was most interesting. The boys, under very adverse conditions, acquitted themselves well, and their bright little play at the end was given with delight. The paper was closely reasoned and persuasive, and one could see that in enthusiastic hands a method like this will teach boys to speak a kind of Latin (I mean no disrespect), will interest them in Latin as a vehicle for literature, and will immensely hurry up their Latin studies. I do not suppose that Dr. Rouse or Mr. Mainwaring will claim that the method *per se* will make exact scholars or will enable boys to get scholarships. The questions after the reading of the paper showed how much the audience was interested in the successful passing of examinations. As you have laid stress on this method, it might be worth while to direct your readers to any fugitive literature which exists on the subject. But I would like to ask whether, up to the time of Shakespeare and even beyond, Latin was not taught precisely in this way? Did not our painful method of gerund-grinding come in as a result of the Renaissance, and in the direct method are we not returning to older ways? I hope much more will be heard of this Latin-speaking, and that its undoubted possibilities will not be lessened by its having too much claimed for it. As an introduction to Latin it is easy, natural, interesting, and very speedy, and with that we ought to be content, and for it we ought to be thankful.

ARTHUR BURRELL.

Late Principal, Borough Road College.

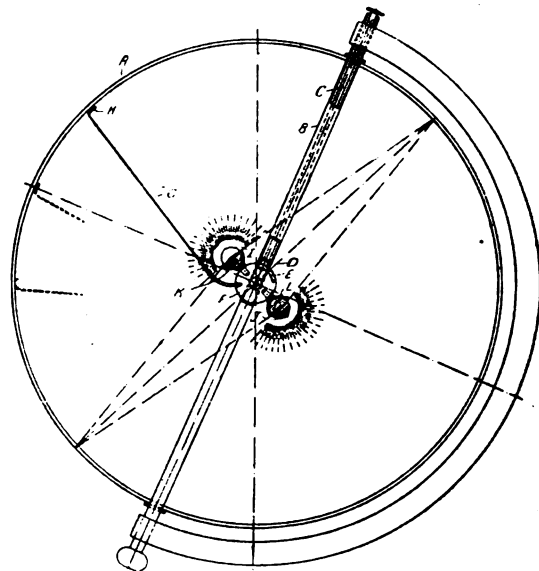
#### A Model to show Duration of Daylight in Different Latitudes.

This apparatus for facilitating the explanation and teaching of geographical terms comprises a frosted glass globe, with lines of latitude and longitude on it, and outlines of the countries of the world, with the names of the capitals and chief towns.

Placed axially to the globe is a hollow tube representing the axis of the earth, fitted within which is a spindle having a pinion on the end to actuate a quadrant, to which is fixed a pointer adapted to travel from  $23\frac{1}{2}^{\circ}$  S. latitude to  $23\frac{1}{2}^{\circ}$  N. latitude. Fixed to the end of this pointer is a small yellow-coloured glass lens. Attached to each end of the quadrant's diameter, and on the plane of the equator, are two electric lamps, one of clear glass and the other of red glass.

The lamps, illuminated by a current led up through the lower end of the axis and shaded by shutters to limit the field lit by each to one-half of the globe, light up the globe one-half bright white light (day), the other red (night). The yellow beams thrown on the earth's surface represent the sun's perpendicular rays. As the earth rotates this shows day and night.

If the quadrant is turned until the sun (yellow light) is  $23\frac{1}{2}^{\circ}$  N. of the equator, the globe is illuminated to show the north pole and all land within the arctic circle revolving in daylight, while the south pole and all land within the antarctic circle revolve in darkness. This demonstrates the limit of the sun's



perpendicular rays north of the equator, *i.e.*, the tropic of Cancer. It shows also the limit of the sun's rays beyond the north pole, *i.e.*, the arctic circle. It also shows the distribution of daylight at the summer solstice.

If the quadrant is turned until the sun's perpendicular rays are  $23\frac{1}{2}^{\circ}$  S., corresponding phenomena in the southern hemisphere can be shown.

With the quadrant so that the sun's perpendicular rays are at the equator, the distribution of daylight at the autumnal, or at the vernal, equinox can be demonstrated.

H. M. FLETCHER.

North Kelvinside Higher Grade School, Glasgow.

#### Geometrical Figures.

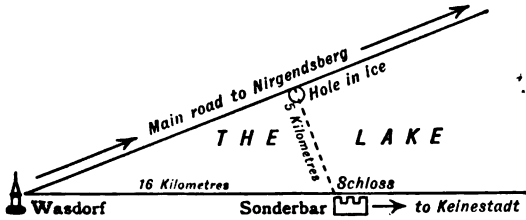
ACTING on a similar impulse to that animating Mr. Hart-Smith when he propounded the geometrical puzzle which appeared in your December, 1912, issue, I venture to send the following communication:

"Wasdorf.

"DEAR MR. B.—I am wintering here, at the head of Lake Nirgendsberg, 16 km. from Schloss Sonderbar, where Werister is staying. Last month we had a skating adventure. The lake here is triangular,



bounded on one side by a road running due E. from Wasdorf through Sonderbar towards Keinestadt, and on another side by the main road through Wasdorf towards the city of Nirgendsberg—as in this sketch.



Starting from Wasdorf, we had skated at least a dozen kilometres along the edge of the Nirgendsberg road, when a fat Dutchman ran into us, and all three collapsed into the water, which was fortunately shallow.

"On our emergence, Werister sighted the Schloss across the lake. 'Make a bee-line for it,' said he, 'it looks about 5 km.' A peasant, who had just come from the Schloss, said 'Exactly five.' This our pedometers proved to be correct.

"When changing my clothes at the Schloss I noticed that my gold repeater was gone! Evidently it had fallen into the water. Werister arranged to meet me next morning at the hole in the ice. He would skate the 5 km., and I would cycle along the Nirgendsberg road, not feeling inclined to skate a dozen kilometres and back next day.

"We met according to the arrangement, but not a trace of the hole was there! Backwards and forwards we trudged along the Nirgendsberg road, at least 5 km. each way, searching the edge of the lake, for a distance of quite 10 km., without finding the place! I cannot explain it, nor can Werister. As I put it to him: 'Here we are, 16 km. apart; you skate 5 km., and I cycle 12 km. But three sides are sufficient to determine a triangle, so we must meet at the right spot.'

"Or, as he put it to me: 'Here are two fixed roads, one running due E., and the other 15° N. of E.; I cross over, from a fixed point in one road, a fixed distance, viz., 5 km., to the other fixed road; so it must bring me to the right spot.'

"There can be no doubt about the measurement, which we have confirmed from various sources. Yet it is equally clear that this measurement brings us to the wrong place!

"Thinking it to be a simple geometrical problem, I wrote to my cousin, Mrs. Very-Shore, who poses as an authority. She replied: 'In the good old days no student would have doubted a proposition of Euclid. I suppose your master never taught you that there cannot be two triangles having their co-terminous sides equal. . . . It is clear that you found the correct place, but the lake had frozen again. . . . This sort of error comes from abandoning the true principles of geometry. . . .'

"But I am certain we did not find the right place.

"My brother-in-law, J. Assiam, wrote: 'You are mistaken in supposing that Wasdorf is 16 km. from Sonderbar; my map gives 12 km.' But Jack had found the village, not the Schloss Sonderbar.

"My uncle, Mr. Jeremiah Jorkins Footle, M.A., who always gives me more kicks than halfpence, wrote thus: 'If you had devoted yourself with greater assiduity to your studies during the period of your school life, you would have comprehended the futility of the search when your sole trustworthy measurement is a length of five kilometres—which I understand is approximately equivalent to eight miles. You ought

to be aware that it requires exactly three measurements to locate a place by means of triangulation. Any lesser number renders the problem indeterminate; but any greater number is purely redundant. Your attempt to perform the impossible, by means of a single span, or even with the help of the distance between Wasdorf and the Schloss, which I presume you have calculated, probably incorrectly, from a local map, is precisely the type of error to be anticipated in one of your meagre attainments.' Evidently Uncle Jeremiah has never seen kilometre posts; I wonder whether he really knows anything about triangulation either?

"My sister wrote: 'If the hole is 12 km. from Wasdorf along the Nirgendsberg road cannot you find it with a cyclometer?' But I never said it was exactly 12 km., only that it was at least a dozen kilometres.

"I always used to be at the bottom of your class in geometry; but I remember that you often set us questions about finding hidden treasures, or places where people ought to meet. You drew lines, which Mr. Figgers called 'low sigh,' but Mr. Larty called 'lock-key,' which I thought much more expressive. It had something to do with the Latin *locus* (doesn't it mean a place?)—my memory is awful—but I think you generally called the line a *path*. It seems to me as if that method ought to work, so I am writing to see if you can help me to find my watch.

"Your old tormentor,  
"S. SIMON."

It has occurred to me that those of your readers who were so anxious to help Mr. Hart-Smith may be willing to take the same trouble in the case of my young friend. Letters addressed to my care will reach their proper destination.

R. WYKE BAYLISS.

Whitgift Grammar School, Croydon.

**Astronomy as a School Subject.**

It appears, at the present moment, that the teaching of science may produce the very effect which it was instituted to avoid, for science was intended to create an attitude of mind rather than to serve as a mental kitbag of "useful knowledge." The reason why the results of science teaching in schools so often fall short of the mark may probably be sought in the relationship between facts and principles. Not until we have the facts can we guide the mind towards unifying principles; and yet a course in chemistry or physics will so often be confined to so small a corner of the field of knowledge that the principles which are exemplified will not be recognised as part and parcel of the whole scheme of natural phenomena. We require breadth: breadth of the field of investigation, breadth of intellectual grasp and outlook. I would claim for astronomy that in this respect it offers peculiar advantages over other branches of science, and that it is on this account, as well as for other reasons, eminently suitable as an instrument of education in the commencement of the study of science in general.

Having taught astronomy to boys whose ages ranged from eleven to fifteen years, I suggest the following reasons why the subject should be included in the curriculum:—

(1) There is probably no other branch of science of which the broad outlines can be so thoroughly grasped in a given time. After a term's work in astronomy, studying the subject two hours a week, an ordinary boy of twelve or fourteen years of age feels that he has grasped the subject in a way which is impossible in chemistry or physics. Of course, I do

not mean to say that he will feel his knowledge to be, in any sense of the word, complete; but the broad outlines will be clear to him, and he will know where to fill in the details. This is a source of encouragement to a boy who wishes to learn. He gains confidence in his own powers; and to have got the "hang" of one subject means that he is far on the road towards learning how to learn. How many of us tackle a new subject on the lines we followed in the first subject we "grasped"?

(2) There is no other branch of learning which possesses the same breadth, extending as it does over the whole scheme of the visible creation.

(3) There are few boys who do not find the subject interesting, particularly if they are allowed to do some practical work with even a small telescope.

(4) It is closely bound up with ancient and modern romantic literature, in which boys are almost always interested.

(5) It affords endless examples of the way in which many careful and accurate observations have led to the formulation of general principles.

(6) Through (4) and (5) it can be made to unite literary and scientific studies by bridging over the gulf by which they are too often separated.

(7) In almost any class two or three boys will be found who will become real enthusiasts, and will keep up their interest in the subject throughout their lives. In these cases the great educational value of the subject cannot be doubted.

I am not suggesting that astronomy should displace any subject at present taught. I ask that two hours a week for two terms should be devoted to it, and I feel confident that we should produce fewer men of science who would answer to the name of "Scarabee," and a greater number who would exemplify Simon Newcomb's statement concerning the true man of science—"His domain is as wide as nature itself."

E. O. TANCOCK.

Giggleswick School.

#### Practical Arithmetic.

FOR elementary work in arithmetic a special course is needed for English schools in Ceylon, *i.e.*, for schools in which the medium of instruction is English. The reason for this is that we have in Ceylon a decimal coinage, rupees and cents, and at the same time use English weights and measures, whilst in view of the number of pupils who enter for the Cambridge Local Examinations a knowledge of English money is also necessary. In trying to arrange a suitable course I have aimed at giving problems to show the practical value of every step of the work. I have not hesitated to make use of standard published works, rearranging and adapting to suit local needs. American arithmetic has been most useful for elementary work with decimal coinage; and for length and weight I have found plenty of material; but, when it came to capacity, practical examples dealing with bushels and quarters were conspicuously absent, and the few examples that I have been able to find are mostly artificial, giving combinations that would never occur outside of an arithmetic book.

I must confess that my own ideas were hazy when I set to work to collect material, so I think that the information gained may possibly be of use to other teachers in forming new problems.

"Eight bushels make a quarter" of what? In childhood I learnt, "four quarters, one load." But what kind of a load? A cart-load for one horse is the most likely suggestion. Also four quarters make a ton in cargo measurement; and a ton in cargo measurement is 40 cubic feet. Then, the weight of

the measured quarter is not always the same. Wheat weighs 36 stones to the quarter; barley, 32 stones; oats vary more than other grains, but 24 stones may be taken as a working average. Another point is that the sack is made to contain 4 bushels, so there are two sacks to the quarter; this is a convenient bulk for a man to handle in loading or unloading his cart. A full-sized sack will, however, hold 20 stones of flour, but this is too heavy when dealing with large numbers, so a half-size is made for 10 stones, but this gives too many journeys from cart to store, and another is made to contain 16 stones. It will be noted that each of these weights is a definite fraction of a ton— $\frac{1}{4}$ ,  $\frac{1}{3}$ ,  $\frac{2}{5}$ . Of course, it is obvious that any desired quantity may be put into a sack, but grain bulked in trucks or warehouse would be in standard sacks. A merchant would not, for instance, load a truck with sacks containing each 84 lb., nor with sacks containing 85 lb. These, however, are not impossible, but has anyone ever seen a sack that would contain "6 qr. 3 bush. 2 pk."?—a sack holding more than twelve of the ordinary size! And if such a monster were made, would anyone want 841? Yet a problem in a practical arithmetic published within the last five years requires one to suppose it possible.

The following questions for oral work may perhaps suggest further problems:—

(1) If a sack of barley weighs 16 st. and a quarter of barley weighs 448 lb., how many sacks are required for 20 qr.?

(2) If a quarter of wheat weighs 36 st. and costs 30s. 9d., what is the cost of 20 qr.? What must be the price of 1 st. for a profit of five guineas to be made by the sale of 20 qr.?

(3) A merchant bought 4 qr. of oats weighing 24 st. a quarter, and paid 18s. a quarter and 2s. 6d. for carting. If he sold the oats for a shilling a stone, what profit did he make?

All data should be given every time; pupils are not expected to learn the relation between measure and weight.

The relation between 4 qr. and 40 cu. ft. will suggest that a merchant might take stock of grain lying on the floor in bulk by measuring the area of the floor and the depth of the layer of grain.

M. F. HIGHFIELD.

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## The School World.

A Monthly Magazine of Educational Work and Progress.

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# The School World

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SIXPENCE.

## GRAMMATICAL REFORM.

By PROF. E. A. SONNENSCHIN, M.A., D.Litt.

THE Editors of THE SCHOOL WORLD have suggested to me that I should write an article in which should be contained an answer to various questions which have been addressed to them as to recent developments in connection with the Report of the Joint Committee on Grammatical Terminology, and I have much pleasure in falling in with their request. I will try to make this article an answer as direct as possible to the questions which have been raised in various quarters.

(1) The Report was presented in an interim form in December, 1909, and in completed form in December, 1910. After each presentation it was considered at general meetings of all the eight associations represented on the Committee, viz., the Classical Association, the Modern Language Association, the English Association, the Headmasters' Association, the Headmistresses' Association, the Assistant-masters' Association, the Assistant-mistresses' Association, and the Association of Preparatory Schools; and it received their general approval.<sup>1</sup> Some of the associations, however, made suggestions as to the improvement of the completed Report, and these were considered by the Committee in 1911, in which year a revised edition was produced, containing a few modifications based on the suggestions received, and this was published by Mr. John Murray (price 6d.). Since that date the Report has been re-issued in 1912, without change; and a new issue, again unchanged, is on the point of being published. The fact that new issues are demanded affords welcome evidence of the interest which the Report has excited and is continuing to excite in the teaching world.

(2) A still more gratifying piece of evidence that progress is being made is furnished by

the fact that the recommendations of the Joint Committee have been adopted either in whole or in part in a considerable number of text-books which have appeared since the date of its publication. In fact, so far as I have observed, almost all the new books dealing with grammar make the Report the basis of their terminology. The most conspicuous instance of this is the Revised Edition of Mr. West's well-known English Grammar, published by the Pitt Press; for the question how far the writers of well-established books think it desirable to adopt the reform suggested by the Committee is a test question. Mr. West's new edition is entirely re-written so as to bring it into touch with the simplification and unification of terminology recommended by the Committee; and the Pitt Press has published a separate document ("A Short Account of the Work done by the Committee on Grammatical Terminology"), in which full justice is done to the importance of the reform. Among the changes made by Mr. West may be mentioned (i.) the use of the terms "accusative" and "dative" instead of "objective," and of the term "genitive" instead of "possessive"; (ii.) the adoption of the names of tenses recommended by the committee; (iii.) the abolition of the name "compound sentence," involving extensive changes of terminology. Mr. West, however, still retains some of the names rejected by the Committee (e.g., "subjective complement," and "objective complement"). The following is a list of some other English grammars which are based upon the Committee's scheme: "The Beginner's English Grammar," by Misses F. W. Harrison and E. Harrison (Longmans, 1911)<sup>2</sup>; the "Advanced English Grammar through Composition," by Mr. J. D. Rose (Bell, 1912), in which book a few minor divergences from the scheme of the Committee are indi-

<sup>1</sup> The Headmasters' Association passed the following resolution (proposed by Mr. Rushbrooke and seconded by Dr. Spenser): "That the Report of the Terminology Committee be received, that it be generally approved, and that it be commended to the most careful consideration of the teachers and writers of books dealing with the languages concerned, as a material advance towards a practical system of uniformity in the use of grammatical terms."—*I.A.H.M. Review*, January, 1911.

<sup>2</sup> This book contains an introduction by Miss Burstall, headmistress of the Manchester High School for Girls, in which she remarks that "children of ten who learn this system will not be puzzled later on by being obliged to learn grammar over again with another set of technical terms when they study French and Latin."

cated<sup>3</sup>; "A Skeleton English Grammar," by Messrs. S. R. Unwin and G. Abbott (Fisher Unwin, 1912); "A New English Grammar for Junior Forms," by R. B. Morgan, Headmaster of Whitgift School (John Murray, 1912). But the use of the reformed terminology is not limited to books on English grammar. In Mr. J. H. Sleeman's "Cæsar in Britain and Belgium" (Pitt Press, 1912), the scheme is adopted with very few modifications. Some of the terms recommended are employed by Messrs. J. M. Moore and J. Slight, of Edinburgh, in their "Intermediate French Course," e.g., the terms "Past Historic" and "Future in the Past." One English grammar I have omitted from the above list because I have mislaid the copy; but I remember that though the writer professed to follow the scheme of the Committee, he did not actually do so in regard to some important points.

The profession of adherence (or "practical adherence") to the Report is no doubt an indirect compliment to the Committee; but I feel bound to enter a protest against a procedure which is likely to mislead the mind of the public as to what the recommendations of the Committee actually are. It would be well if writers would follow the example of Mr. West and Mr. Rose in stating precisely at what points they disagree with the Committee's recommendations. Any book, even if written without regard to the Report, is sure to coincide with it in regard to a certain number of terms; for the Report is on the whole of a conservative character, and recommends changes only so far as they are thought to be substantial improvements. Among Latin and French books in which the scheme is adopted in its entirety I must mention my own "New Latin Grammar" and "New French Grammar," published by the Clarendon Press in 1912, and the following volumes of the *Ora Maritima Series*—"En Vacances," a French story (1911), "Am Rhein," a German story (2nd ed., 1912), "Ora Maritima," a Latin story (8th ed., 1913, to appear in the course of this year). I am now engaged on a "New English Grammar," in which the terminology will be employed without change. Mr. G. H. Clarke, another member of the committee, is also about to publish an English grammar.

(3) Another very gratifying fact in connection with the Report—and this is perhaps the most important of all evidences that real progress is being made—is the adoption of its terminology by two Universities for use in their matriculation examinations. The Uni-

versity of Wales has decided that in setting questions the terms recommended by the Committee shall be quoted, if not adopted; and the University of Birmingham has resolved to employ the terminology of the Committee, with other terms inserted in brackets in cases where any misunderstanding as to the meaning of the question might arise. Several other university bodies have shown their sympathy with the movement by undertaking that answers of pupils couched in the terminology of the Committee shall be accepted, and copies of the Report have been distributed to their examiners with a view to the marking of scripts. Among these bodies may be mentioned the Oxford and Cambridge Schools Examination Board, the delegates of the Oxford Local Examinations, and the Law Society. The Civil Service Commissioners state that "while grammatical terminology enters into very few of the examinations conducted under their direction, they desire to express their sympathy with the object of the Joint Committee and their recognition of the admirable way in which that object has been carried out." The future of the movement must depend to some extent upon the attitude of examining bodies; and it may perhaps be fairly inferred that examining bodies will at least put no obstacle in the way of the use of the terminology in schools. It is quite possible that they may find in the scheme of the Committee a valuable aid to their own work in the setting of papers; for all examining bodies have felt to a greater or less extent the difficulty of setting grammatical questions which shall be free from ambiguity.

(4) A few words on the international aspect of the movement. Last May the two leading teachers' associations of South Africa (the South African Teachers' Association and the Zuid-Afrikaanse Onderwijzers Unie) passed by unanimous vote the adoption *in toto* of the recommendations of the English Joint Committee, and the Superintendent-General of Education, who was present, stated that if the teachers' associations favoured the adoption of the reformed terminology, there would be no opposition by the Education Department of the Province. A committee of the above two associations was appointed to translate the report of the English Joint Committee into Dutch (*Cape Times*, May 21st, 1912).

At a meeting of the Imperial Conference of Teachers' Associations, held at the Caxton Hall, London, on July 15th of last year, Prof. Gilbert Murray in the chair, a resolution moved by Mr. John Mellor, of South Africa, and seconded by Prof. Darnley Naylor, of Adelaide, was unanimously adopted: "That this Imperial Conference of Teachers' Associations

<sup>3</sup> In his preface Mr. Rose recognises that "a great step in advance towards efficiency in grammar teaching has recently been taken by the laying down of a uniform grammatical terminology for all school languages by a committee representing all the chief associations interested in language teaching in schools."

place on record its hearty approval of the principles embodied in the Report of the Joint Committee on Grammatical Terminology, and impress upon the delegates the desirability of bringing them to the notice of their respective associations." I hope that the recommendation of the conference will be carried out, and that in the course of the coming year the question of grammatical reform will find a place on the agenda papers of all the teachers' associations of the British Empire.

In France a limited grammatical reform was inaugurated in 1906 by the appointment of a special Commission, with the view of simplifying the terminology of French alone, and the recommendations of this Commission have been adopted by the Ministry of Public Instruction with certain modifications. The further step of unifying the terminologies of different languages for use in French schools has been demanded by a resolution of the *Congrès International des professeurs de langues vivantes* at its meeting in Paris, April, 1909.

In Germany the matter will be discussed at the next meeting of the *Neuphilologentag*, when the report of a committee will be considered. It was also brought up by Prof. Krüger in his address to the philological conference in Posen, and at Frankfurt by Dr. Zeiger (see an article by Dr. E. Hermann in the *Berliner Philologische Wochenschrift*, December 7th, 1912).

In Austria a Viennese Committee has already issued its scheme on these lines (*Vorschläge des Wiener Ausschusses für einfache und einheitliche Fachausdrücke im Sprachunterricht*. Gebilligt vom Wiener Neuphilologischen Verein. Vienna, January, 1912). One of the recommendations of this committee is the abolition of the inadequate name "Imperfect" to describe the tense of the German *schrieb* and the English *wrote*, and the substitution of the term "Past."

America is taking the matter up with characteristic energy. A committee of fifteen was appointed last year, on which the Modern Language Association of America, the National Education Association, and the American Philological Association are represented, and this committee held its first meeting at Chicago last December under the chairmanship of Prof. Hale. It will proceed with the same object as the English Joint Committee, *i.e.*, the harmonising of the grammatical nomenclature of all the languages taught in schools. "The present condition of things is wasteful of time for the student and intellectually intolerable" (Prof. Hale).

An international agreement as to the use of grammatical terms is doubtless a matter of great importance; and even though it should

be found that some amount of divergence in the practice of different nations is a necessary consequence of (i) the hitherto prevalent usage of different countries, (ii) the necessity of making the mother tongue the point of departure in all countries, it is nevertheless clear that more agreement than at present exists might be attained to the great advantage of all the countries concerned. But a more important matter than the agreement of different countries is the principle that in any one country the same set of terms should be employed for the teaching of all languages. In England, for example, it is a matter of comparative indifference on what basis French pupils are taught their ancient and modern languages; but it is a matter of vital concern that English pupils should not be confused by divergences of terminology where a common term would suffice. And, on the same principle, unity of terminology in any one school is desirable, whether it can be secured throughout the country to which that school belongs or not.

(5) The last question which has been raised by correspondents of THE SCHOOL WORLD is one to which I find it impossible to give a complete answer: How far have the recommendations of the committee been adopted in schools and colleges? To name the institutions known to me in which the terminology is adopted would be no measure of the extent to which the reform has established itself. I hope that the answer to this question will come from correspondents who may write on the subject in a future number of this magazine, and may inform the public how far they have found the terminology recommended to work satisfactorily. My own experience may be worth putting on record. I have adopted the reform in all my classes in the University of Birmingham, and I have found it work well. My colleagues, Prof. Chatelain and Prof. Wichmann will give it a preference in their French and German teaching next session. In writing my new grammars I found no difficulty in applying the terminology to both French and Latin, and it seemed to me that in the statement of rules in both languages clearness and simplicity were gained at points too numerous to mention. Surely it must be obvious that confusion is avoided by describing identical phenomena in different languages by identical terms, and by treating divergent phenomena on the basis of a common terminology. This latter point is one which is often misunderstood.

It is said that a uniform terminology is all very well for cases in which the usages of different languages agree; but how about the cases in which they do not agree? The answer is that where languages disagree, their

disagreement can only be made clear to pupils by the use of a common terminology. The common terminology is, in fact, a kind of common measure of the two languages. For example, if we wish to state the important difference between the treatment of the adjective after the verb "to be" in French and German ("elle est *belle*," "sie ist *schön*"), the only rational *modus operandi* is to make use of a common term (and one already familiar to pupils in dealing with their mother tongue) to describe the adjective in this construction. The rules, then, must run, "The predicative adjective (to adopt the term recommended by the committee) agrees with the subject in French"; "the predicative adjective does not agree with the subject in German." How much clearer this is than to use different terms, as follows: "In German the *appositive complement* does not agree with the subject"; "In French the *attribute* agrees with the subject" (the term "attribute" being current in France to denote what in Germany is generally called the "Prädicats-nomen"). These two latter rules stand in no relation to one another; they have no common measure; and consequently the real difference between the two languages in this respect has to be inferred by a process of reasoning on the part of the pupil. He has to say to himself, if he can, "I see; what my French grammar calls the "attribute" is here the same thing as what my German grammar calls the "appositive complement."

But, of course, speaking broadly, pupils fail to reason in this way, and the result is that rules relating to different languages are simply pigeon-holed separately and out of relation to one another, so that both the differences and the likenesses of the languages concerned are obscured. The difficulty which the pupils feel may be illustrated to the maturer mind by parallel cases. It always requires some effort to translate the terms of an Italian time-table into those with which English travellers are familiar. To be told that a train starts for Rome at twenty-two o'clock involves some adjustment of mind on the part of the reader; but this is a case which can be met by a simple process of arithmetic.

The difficulty is better illustrated by the varying terminologies and symbols employed by different phoneticians. Let the reader, accustomed to the terms "open" and "close," as descriptive of certain vowels, try to adjust his mind to the terminology employed by the late Dr. Henry Sweet in his "Primer of Phonetics," e.g., "high-back-narrow," "mid-front-wide," "high-in-mixed-wide-round," "low-out-back-wide-round." These formidable terms are in themselves admirably descriptive; yet to equate them with a different phonetic

terminology will tax the powers even of a practised student.

One is reminded of the story of the nigger who, after being warned by a preacher of his own colour that there were two roads leading through this life—the broad and wide road that leads to destruction, and the narrow and strait road that leads to something which seemed quite as bad—remarked, "Then dis here nigger takes to de woods!" That is exactly what our distracted pupils do in grammar. Checkmated by the flux of grammatical terms which are forced upon their notice by different teachers and different books, they *take to the woods*, i.e., they throw all grammatical statements overboard, and direct their attention simply to the examples given, thus losing the advantages of a valuable instrument of thought. Nine different ways of describing the adjective in "she is beautiful," eighteen different ways of describing the adjective in "we painted the barn red"! Yet all these terms are intended to describe the same thing, and in reality only one term is needed—the one recommended by the Terminology Committee—"predicative adjective."<sup>4</sup> The comfort which will be felt by teachers as well as pupils in the use of this terminology in connection with different languages, and the fact that each teacher in the school will find that a mind comes out to meet him half way in dealing with any grammatical construction, will in the long run outweigh any temporary inconvenience that he may feel in giving up certain terms to which he has been accustomed, and accepting others (which have commended themselves to an impartial and representative body of experts) as their substitutes.

## NEEDLEWORK IN RELATION TO CHARACTER.

By HILDA M. SKINNER,

Roan School for Girls, Greenwich.

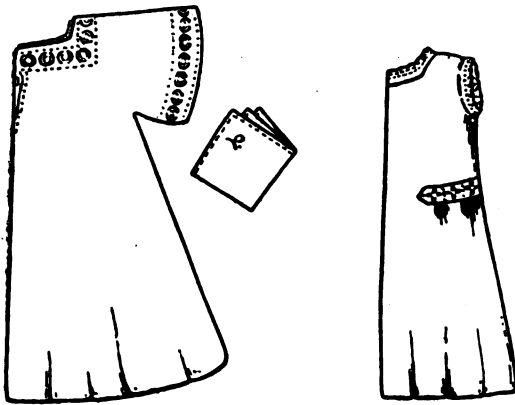
**A**FTER seven years' work among London girls in a secondary school, it is quite clear to me that a love of the beautiful exists in every one of them, from the youngest to the eldest. The question as to how this great quality may be reached and cultivated is important. The girls of London schools cannot gaze on the hills of Surrey when the whole is a glorious mass of gold. They have to content themselves with sights less wonderful, and so, where a subject can be made beautiful, I think it is our business to make it as beautiful as possible.

In no subject is the appeal to the eye

<sup>4</sup> Applicable in both the sentences just quoted. A general rule of agreement may be given in the following form:—"The predicative adjective agrees with the word of which it is predicated in Latin and French; but in German it is uninflected."

stronger than in needlework, both for good form and pleasing colour. Of scarcely less importance is the training that needlework may give in business methods. Again, some of the fundamental principles of political economy may be assimilated quite unconsciously. Also, a carefully graded course of needlework should develop self-confidence, and eliminate the diffidence which often characterises the comparatively untrained mind. Lastly, where a reasonable standard of "finish" is required, there must be concentration.

There are many ways of appealing to the senses of girls, but happy conditions must exist first. A friendly relationship between the mistress and the girls is quite essential. This idea may be carried further. The friendships among the girls themselves may be taken into account in the organisation of the work. Having secured a happy atmosphere, the mistress should allow the girls to choose



freely from as large a supply of materials and embroideries as the extent of the work will permit. If these things are easily accessible, they will be freely handled, and the girls will learn a great deal as they observe the different textures of the various materials. One can judge more sometimes by the feel of a thing than by its appearance. Besides, it is a very real pleasure to girls to handle pretty things. When materials and patterns have been chosen, some decoration might be introduced on almost every piece of work, just to give that touch of colour which is so delightful. It is the 'V' worked in lavender silk in the first form on a handkerchief, the chain-stitched design on a tunic in the second form, the pink zephyr under the insertion at the waist of a petticoat in the third form, and so on, that just make all the difference, and act as magic.

Having made the work attractive, and loved for its own sake, one must work the subject on business lines. There must be a reality

about the working-out which will appeal to the common sense of the children, and London girls have a large amount of common sense. Having gained the confidence of the parents, one should encourage them to create a demand, and this demand, if sufficiently great and varied, will determine the nature of the work produced. In this way, the parents become our judges, and whose judgment could be more respected? I never felt more deeply mortified than when a dressing-gown was once sent back by a parent because it was too badly made to be bought. I have always been able to classify these orders in such a way that the school syllabus remained intact.

Prices should always be determined by cost of production, and with the parents' orders demand and supply will be nicely adjusted, no unwholesome fall in prices being necessary owing to an excessive supply of any one garment. A lively interest is always shown in the ultimate cost of garments.

A certain amount of self-confidence is necessary to success in anything; and in nothing does the absence of it tell so quickly, and with such serious results, as in cutting-out. It is, however, very noticeable how fearless children are in this respect if they advance by very slow stages. I do not have six mishaps in a year, where nearly three hundred girls of different ages are all cutting out for themselves. The child of seven who has really cut the square for her pocket-handkerchief, and has measured it most carefully—in fact, has made a pattern for it in paper before cutting it in nainsook—does not mind, when the time comes, cutting off her 32 inches of material for her pillow case. She is quite ready to tackle a petticoat or pinafore for herself later; then her gymnastic knickers, afterwards her gymnastic blouse, not to mention a possible cookery or science overall.

Finally, to expect any uniform standard of "finish" is to forget that no two girls are made up of the same qualities. In no part of the work is it more important to treat them as individuals, and to take into account all their various characteristics. Here comes in the great advantage of knowing all the girls in the school, in other capacities than in that of needlework mistress. As form mistress you will know your own thirty girls in a very special way, and it will be surprising if you are not especially successful with them. As history mistress in the middle school, you may come into touch with a hundred others, and so on. To return to the folly of demanding a uniform standard of finish, it is absolutely necessary to approach weak, tiresome girls with the utmost sympathy and tact, if they are to do any good.

A short time ago, three friends, notorious for bad behaviour, all reached a stage in a winter nightgown when it was necessary for them to get more skilled in buttonholes. Needless to say they all exclaimed and declared they couldn't do buttonholes. I confess they received more than their fair share of my attention, but the feat was accomplished, and by the end of a ninety minutes' lesson they were all three well on the road to making very fair buttonholes, and were not a little pleased with themselves. It took some doing on their part, and some patience on mine, but the work was accomplished, and some degree of self-confidence was gained. The awful depression that can settle down like an extinguisher when an impossible task is set before one, or when too high a standard is demanded, is truly terrible.

After seven years' experience, my opinion is that in good needlework a love of the beautiful can be developed by contact with pretty things in a happy atmosphere—that a girl may learn many lessons which will stand her in good stead when she enters the industrial world; that she may gain a belief in her own powers without being over-confident; and, lastly, that she may find herself the happy possessor of that infinite capacity for taking pains which is a sure road to a full and useful life.

### UTILITARIANISM IN SCIENCE TEACHING.

By A. S. BRIGHT.

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**E**DUCATIONISTS to-day are realising that at the back of learning is interest. Without interest, teaching is futility. One of the factors making for interest is utility. A child naturally takes more interest in that which he feels is useful. In fact, if we measure the value of learning by its utility, there is little advantage in taking things that are not useful. Much of the teaching in school could be benefited by being examined from the point of view of utility, but in this article it is proposed to confine our attention to the science course. Is our science really of the practical type that will be of help in everyday problems, and in what way can we make it more useful?

The practical work in science affords a good opportunity for very valuable training in self-reliance and in initiative. The success of our teaching is judged by the effect it has on a child's attitude towards the world. If it makes him strong and self-reliant, an active investigator and discoverer, and not a passive recipient, then we are justified. Set a boy

a puzzle to solve, or a problem in boy scouting, and he begins to use his mother wits. We must aim at ensuring that a boy uses the modicum of common sense he possesses before he begins to draw on the information of his teacher.

In order to encourage this spirit, all our children work from instruction cards. Ours is a senior mixed school, and in the last two years the science is all taken practically for both boys and girls. We have a scheme of about 100 experiments numbered in order. Wooden card indexes were made at the manual centre, and the experiments were typed, cyclo-styled, and then mounted on cards—several of each. These cards are arranged in the index boxes. Each child takes its experiment card and notebook. The necessary apparatus is indicated on the card, and is issued by the monitor. Then the child is required to call up its reserves of intelligence before appealing to the teacher.

There are very obvious advantages attaching to the card system. There is no disorder while the experiments are being prepared. Each child knows exactly which experiment to do, and, having the card, can proceed at once. Then each card sets a definite problem to solve, and this makes the children keen and self-dependent. It shows the correct spelling of difficult words the children may not have come across, and prevents the outrageous errors sometimes encountered. There is no advantage in keeping all the children together, and, finally, it familiarises them with working from written instructions. The teacher is there to supervise the work, but encourages the children to solve their own difficulties. In the lesson and afterwards, the books are marked, and, unless the experiment is approved, the child has to repeat the work. The marks assigned are tabulated on cards, and the progress of the child can be followed throughout the course.

We have a convenient detached science room, where practical work can be carried on. First, it is necessary for the children to be able to use simple apparatus; and then we have endeavoured to find problems of the sort that are likely to occur in after-life. For our science course there was no need to go to the chemist or the physicist, for the everyday world contains a sufficiency of problems for a lifetime. Our science should be not merely the science of the beaker and the balance, but the science of the water-tap and the lock and key. If it is instructive to know what goes on in an electrolysis apparatus, which is never seen outside a laboratory, surely it is more instructive to know what goes on in a steam engine, which is seen daily. There is as much abiding satis-



faction in a preliminary course of chemistry or physics, or chemistry taken *solus*, as there is in *hors d'œuvre* unfollowed by a meal. It merely tantalises. It takes the pupil towards the realms of the interesting and leaves him at the outer gate. There may be a justification for taking specific heat if it is followed by a lesson on land and sea breezes, or the steam engine, otherwise it may be quite waste time; and too often a year after leaving school the child does not know the difference between specific heat and specific gravity. We must more frequently ask ourselves, "What use is it?"

At our school we have fitted up telephones to connect the different buildings, and the use of this instrument is a regular experiment, so no child leaves without being able to answer a telephone call. A railway time-table affords quite a good experiment in investigation and calculation. Getting the distance between two points from the table of fares, one can calculate the average speed of the train. Then we use the tube and 'bus maps as aids to a knowledge of London. We plot a barometric curve from observations taken daily, but perhaps the most important thing to know about a barometer is that a falling glass shows rain, while a rising glass presages fine weather.

The teacher, of course, exercises his discretion in picking a period where theory and practice are not too much in conflict, and, marking the weather against the curve, this is clearly seen. The comparison of time in boiling water with a burner properly lit, and then with one "lit back," shows the wastefulness of careless lighting. Experiments of this type are naturally as useful to boys as to girls, but many experiments are differentiated for the two sexes, especially in the latter part of the course.

One has only to think; and many of the simplest things we use in daily life are scientific problems suitable for boys. A lock and key form a good experiment, and one that has as many variations as there are types of locks. The card asks for an explanation of the working, and for drawings of the interior with the bolt in and out. Many of the old problems of mechanics are here presented in an interesting form.

Then a cycle valve is a simple but clever piece of mechanism. This brings us to the cycle pump. When all the air is pumped through the valve into the tyre, how does the pump get full again? Next the football pump: in what way does it differ from the cycle pump, for a football bladder has no valve, as every boy knows.

Then there is the bunsen burner and the incandescent mantle burner. One problem

that sooner or later presents itself to every householder is the leaky tap. We include the internal economy of the usual screw down water-tap. We have a cinematograph made from a disc of cardboard, a cotton reel, and a piece of mirror. It serves to illustrate an apparatus with the effects of which London children are only too familiar.

We take no lesson on chemical combination as such, but we dissolve copper in acid to a blue solution, and with a knife blade we get copper deposited from the solution. Thus we learn that a transparent blue solution contains a red metal that can be readily drawn from solution. At the same time, the idea of electroplating becomes more clear. The effect of "weathering" on metals is studied. Soldering follows a preliminary experiment which shows that solder will not stick to a piece of tin unless it is clean and coated with flux. Every lad then learns to solder, and many become quite expert in giving a kettle a new lease of life, or in making a steam engine.

The steam engine possesses a great fascination for most boys, young or old, so we take this. We have made a simple steam engine. The oscillating cylinder came off a toy engine. The frame is two picture hangers, and the fly-wheel came from a sofa castor. The engine has no boiler, but it works if one blows down a pipe. Take off one nut and you can remove the cylinder and take out the piston. When this is done and the action is thoroughly understood, we have a more pretentious slide-valve engine, and a home-made wooden-sectioned model, to illustrate its interior. Periodically the engine is taken to pieces to sketch the parts. This large engine has a steam and water gauge, and it is an experiment that is generally approved by the boys.

Then we study electricity in a severely practical way so far as it comes in our daily life. First, we wind wire round a French nail and use a dry cell as a current source. Naturally we discover the nail is now a magnet, but ceases to be when the wires are disconnected. Having the principle of the electromagnet, we go on to the telegraph. This is simply an electromagnet at the other end of a pair of wires. We have several bell-indicator movements. These consist of a magnet and a rocking piece capable of being attracted. The indicating flag we remove. They cost eightpence each and make excellent sounders, and on them some of our boys have learned the Morse code.

Next we study the electric bell, and then we have a home-made electric motor, consisting of a magnet from an old bell and a rotating bar, to give an idea how electricity can be used to work trams and trains. Finally, we have a

half-crown dynamo. Coupled to a handwheel or to the large steam engine, it is possible to light a small lamp, and thus to show how the rotation of a coil generates current. These experiments, together with the telephone, give a good idea of the uses and methods of electricity, and most lads may be trusted to continue the study.

We have a good equipment of tools, and encourage the lads to use them and our science library. We have made an emery tool-grinder, the parts of which started life as a bicycle, and the boys have calculated we can get 2,500 revolutions a minute from it. We have a toy aeroplane and use it as an experiment, and at the present time some of the lads are making a model for a competition we are holding. We recognise that the science of the boys at school should be merely preliminary to further studies, and we endeavour to give them what is not only likely to be useful, but to stimulate them to further efforts. If it results in their taking up a useful hobby, then our purpose is achieved.

Naturally, much of the girls' work is differentiated from that of the boys. Their problems are the problems of home life. They do not titrate an acid against an alkali, but they bring some fat and convert this into soap, and they know that with caustic soda they get a hard soap, while potash gives a soft soap. They find that ordinary tap water takes four times as much soap to lather as rain water, and they can figure out the waste if tap water is used on washing day. They compare cotton and wool fibres and then linen and cotton. This latter experiment has solved the problem of what to do with the frayed-out collar. I once had quite a collection. To-day, I cut them up in pieces, and each piece has two layers of linen outside and two of cotton inside. This forms the raw material for an experiment, and is now quite at a premium. Then there is the use of bleachers and the removal of stains from garments.

The boys have made the girls a handloom, on which they can weave ties and belts, and one or two of their experiments are connected with the dyeing and preparation of the thread, or of raffia and cane for basket work. Then the children dry new soap, and find it contains often 20 per cent. of water, and that washing-soda crystals are two-thirds water and only one-third soda. New calico of common quality is heavily "dressed." The dressing is washed out and the cloth reweighed. The dressing is often 10 per cent., which is scarcely a point in favour of common cotton goods.

Starch is prepared from potatoes, and then comes the solubility of starch in boiling water and its bearing on cooking. Then from milk

they prepare butter and cheese. The making of polishes for furniture, metal, &c., and baking powders, disinfectants such as Condy's and carbolic powder—all these are important. The comparative inflammability of wool, new flannelette and old flannelette, and the extinction of flame by smothering in a thick piece of fabric, the extinction of oil and petrol flames by sand and dirt, while water will only spread them, are points that sooner or later may be of value, and all of which form experiments that are instructive and suggestive.

There is a wide field in the investigation of ordinary food products and the detection of adulteration. There are simple tests available that do not need chemical apparatus, and can be applied in some cases. In giving these tests, it is important not to give them as definite reactions. So many factors enter in that it is better to investigate to what extent they can be depended on as tests. By this means the children get a real idea of their value, and are not tempted to depend too strongly on them.

The commonest preservative of milk and butter is boracic acid. Turmeric paper will show its presence. With butter it is advisable to stir well in hot water and let it cool, then removing the butter from the top of the liquid which contains the boracic acid. Copper can be detected in green vegetables by merely making acid and placing in them a bright iron nail. This becomes coated with copper.

Then coffee is much adulterated. Coffee itself contains an oil, and floats; practically all coffee adulterants sink, so that simple shaking of a coffee mixture effects a separation that is almost quantitative. Chicory, too, is partly soluble in cold water and leaves brown streaks in sinking. Then carefully examine with the naked eye or a lens. Coffee appears rough, while chicory and ground beans are shiny. The stores list is freely used and the cost of such a mixture is estimated and compared with its selling price.

Butter is often the victim of circumstances over which it has no control. Chemists usually apply as a first test the "spoon" test. A piece of butter as big as a cobnut is heated in a big spoon. Fresh butter will boil quietly, going gradually into foam, while margarine or other fats splutter and crackle. Another test is to melt it over hot water, keeping it fluid for, say, half an hour. On cooling, fresh butter is entirely clear, while other fats will be turbid. If a floating wick be lit in the melted fat, suet or tallow would give their well-known odour. Eggs can be tested in several ways, among others by floating in water.

Milk is a most important article of diet, and should be beyond suspicion, but, unfortunately,

it often is not. I have noticed abroad that the use of the hydrometer, or lactometer, is much more common than it is in this country. The instrument is sold for less than a franc. I think our children might use them. The specific gravity should be between 1.027 and 1.033. An indication below the first figure shows the milk is either very rich or has been watered. It should not be difficult to decide which.

Dilute acetic acid and burnt sugar colouring are often sold for malt vinegar. If a portion of the manufactured vinegar be shaken with Fuller's earth, most of the colouring is absorbed, while the colouring of malt vinegar largely remains. By comparison, the difference of colour can be observed. If no objection to the acetic vinegar be raised, a sample can be made up by tasting, and then the colour matched by caramel, and prices can be compared from the stores list.

It would teach how easily and by what simple means adulteration is practised. These tests are all sufficiently simple to be used in the household. A knowledge of the multiple methods of adulteration practised by the modern manufacturer may cause a doubting eye to be cast towards the packet goods that are usually purchased at fancy prices from lack of knowledge, or to save trouble.

We make up a number of the more ordinary household preparations from recipes detailed in parts, using grams and c.c.'s or ounces and pints, yet we must not forget that at home the children have neither balance nor measuring-glass. The ability approximately to make up a recipe given in parts is useful, and after a little practice the girls can readily make up household preparations without extraneous aids. Such things as polishes for furniture, boots, and metals, and such preparations as cloudy household ammonia, soap powder, or baking powder, can be made up to quite a sufficient degree of accuracy. If the result of experiments of the kind indicated merely inculcates an inquiring spirit, they will have served their purpose, for, like every branch of labour, housework must become more scientific—become, in fact, housecraft, rather than housework.

In the narrow limits of this paper I have had to be concise rather than complete, and much explanation has necessarily been omitted. Though in many cases the experiments run in a series of connected problems, yet this has by no means been insisted on. It has been desired rather to set a fresh problem every science lesson. If it opens out of the preceding one, so much the better, but it is rather a preparation for the world which throws the child up against fresh problems every hour of life.

## THE USE OF MATHEMATICAL HISTORY IN THE TEACHING OF ELEMENTARY MATHEMATICS.<sup>1</sup>

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THE interest that might be imparted to mathematical teaching by occasional references to mathematical history was the principal theme of a paper read a few weeks ago before the association by one of its lady members. She suggested (though, I believe, she did not develop this point) that the studies of her student teachers in mathematical history might exercise some influence on their own methods of presentation when they, in turn, should become teachers of mathematics.

My paper this afternoon proposes to develop this very point. I wish to suggest the use that can be made of mathematical history in determining methods of presentation, and to emphasise rather its interest for us as teachers than its interest for those we teach.

But before I come to this—the main business of my paper—let me say a word about the minimum of mathematical history which can, as I think, be usefully introduced into our lessons, *i.e.*, brought directly and consciously before our pupils. This minimum may be concisely summarised in the following injunction to the teacher: Don't use the terms, metric system, Pythagoras's theorem, a proposition of Euclid, logarithms, Cartesian co-ordinates, Newton's laws, Archimedes's principle, Leibnitz's theorem, without pausing to give some historical account of the men, or the principles to which these terms refer.

Very many teachers, of course, do this; but many are content to regard such terms as mere labels for certain pieces of mathematical knowledge for which any other label would equally well suffice. In my schoolboy days the proposition about the square on the hypotenuse was referred to as Euclid I., 47; with the abandonment of the Euclidean sequence, Pythagoras seems to have regained possession of his proposition. But if the name Pythagoras is used at all, it is really necessary to pause and devote a word or two to its elucidation. It is well to clear up that Pythagoras is the name of a man. The word does not always suggest that to a boy. My own practice has been, after some preliminary experiments on the right-angled triangle serving as introduction, to inform the class of the name of the discoverer, and to devote five or ten minutes to a talk about Pythagoras and his school. Incidentally I do the geography master a good turn by inquiring where Greece, Egypt, and

<sup>1</sup> From a paper read before the London Branch of the Mathematical Association on February 8th.

Italy lie. I inform them that the result was discovered, probably experimentally, somewhere about B.C. 550, and that a completely satisfactory proof was not forthcoming until about 250 years later—about B.C. 300, when Euclid flourished. We then speculate as to whether we, too, shall require 250 years to arrive at a satisfactory proof; and an opportunity is here given for a chat on methods of discovery and advance, and on the considerable difference between finding a thing out and having it told you.

George Stephenson was a genius; to be an engine-driver nowadays it is not necessary to be a genius. Of course, one must keep sober in the legal sense of that term. Well, every boy in the class is prepared to furnish me with a proof on the spot, and so show his superiority to two and a half centuries of Greeks. I let them try their powers. When the difficulties of a general proof have dawned on the class, they are led to investigate special cases of the proposition. Most boys can prove the case for the right-angled isosceles triangle; for there, of course, the result is fairly obvious. I then encourage the class in its efforts by informing it that for many years after Pythagoras's discovery, the proof given by the Greeks was no more general than theirs.

Again, when such a term as metric system is used, opportunity is given not only for a discussion on the nature of units in general and on the advantages of a universal standard such as the gramme over an arbitrary standard such as the English pound, but also for a discussion on the historical events associated with the introduction of the metric system into the France of Napoleon and the Revolution. Why has England, in singular isolation among the civilised States of the world, succeeded in defying the metric system? Perhaps it is the price she is paying for having alone succeeded in defying Napoleon! How much scope there is here for the imparting of general information, for the enlarging of a boy's narrow outlook on things, and for combating his ingrained propensity to accept the metric system, or anything else in mathematics, with a merely passive submission; how much scope such a subject as the metric system provides was attested by the very good debate on the subject held by the literary and debating society of the school. The motion was: "That the metric system be introduced forthwith into this country." I may add that some of the mathematical zealots of the sixth form wanted to divide the day into twenty hours, and the hour into 100 minutes; and were prepared, in their metric ardour, to sacrifice many other existing standards.

In the minimum of mathematical history to

be presented directly to the pupil I instanced Cartesian co-ordinates and logarithms as terms which, if employed at all, required some historical explanation. Let me first say a word about the term Cartesians. When I look back on my first acquaintanceship with analytical geometry, it strikes me as extraordinary that I went on using the term Cartesian co-ordinates without ever being led to inquire as to whether the word Cartesian had any special significance. I read some years later that there was a philosophy called Cartesian, and the connection between Cartesians and Des Cartes gradually dawned on me. It never occurred to me that analytical geometry was the invention of human minds; or that there was ever a period in the history of the world when men's conceptions of it were as rudimentary as my own. Why any human being should be keen about referring the variables  $x$  and  $y$  to a pair of co-ordinate axes was no business of mine. A boy does not put himself at the historical or evolutionary point of view; he accepts what is given to him. Conic sections is part of the course, one aspect of the mathematical environment. He is prepared to swallow it—or anything else. Conic sections meant to me another text-book to digest, and another set of exercises to work over. I accepted it as fatalistically and passively as I accepted my parents, my tutors, and myself.

I will take one last illustration of the minimum to which I have referred by speaking of my own practice in the teaching of logarithms. Although my treatment is purely arithmetical and the subject might be regarded as an interesting incident in arithmetic, yet I prefer to make a somewhat formal beginning by informing my class that I am about to introduce them to a great mathematical invention that has for its object the shortening of the labour of calculation. I attempt *deliberately* to be as impressive as possible by instancing other great inventions of a labour-saving character, such as the printing press or the steam engine; and by suggesting that discovery and adventure are as possible in mathematics as in any other branch of knowledge.

The class then reviews the arithmetic it has done, and discusses the sums that have proved most troublesome and wearisome to calculate. An opportunity is here given for a discussion on fractions *versus* decimals, methods of approximation, &c. It soon appears that long multiplications, divisions, and square roots are the thorns in the flesh of the calculator, and he would be grateful if he could escape them. At this point I give the class two or three dates and two or three names in order to bring out the successive improvements in calculation from Roman

numerals, Arabic numerals, decimal fractions, down to the invention of logarithms by Napier. I emphasise the pressure of practical needs—here, the needs of the astronomer, and mention, for instance, the warm welcome given to logarithms by the great astronomer Kepler. Our discussion generally ends with the class describing to me the calculating machines they have seen. On the latter discussion I soon have to move the closure.

From the four instances of the minimum of mathematical history to be presented directly to our pupils it is obvious that the minimum is very small indeed. And while I believe that this minimum is of considerable value, giving the boy as it does (1) some useful general information, (2) a broader outlook on his studies, (3) the humane and the human side of mathematical achievement—mathematics has not dropped down from heaven as an ideally perfect incarnation; its history is, on the contrary, a record of experiment and adventure, of growth and advance—while I believe all this, yet if mathematical history has nothing more to give us, then a small compendium of fifty to a hundred pages would be more than sufficient for the teacher of elementary mathematics. Perhaps it is because mathematical history has been regarded as a pleasant storehouse of anecdote or antiquarian lore: providing, on the one hand, quaint stories of Newton or Archimedes, or enabling us to follow on the track of the algebraic equation amidst the romantic regions of Egypt and the East—perhaps it is this rather pretty view of mathematical history that has prevented the subject from coming into its own and exerting the influence that is its due. The want of a history of mathematics in English on a really adequate scale has contributed perhaps to the neglect of the subject; and I am sure it must be a matter of regret that Cantor's monumental history of mathematics has not yet been translated into English.

The point of view that I wish to urge (and this, as I said at the outset, is the main thesis of my paper) is that mathematical history, though it contains many suggestive tit-bits for the pupil, is primarily of value to the teacher because of the light that it throws on method, and more especially on the problem of the order of presentation. The difference between a text-book of mathematics and a history of mathematics is this: the text-book gives you the logical development of the subject from first principles along some single line of development—the “higher” algebra, for example, starts from the “lower” algebra, with its laws of association, distribution, &c.; the history book, on the other hand, gives you rather the psychological order of development

along many lines of advance. The problem of the text-book is to find the shortest road from its starting point *A* to its clearly defined and consciously known goal *B*; the business of the history is to show us mathematicians starting off at *A*, and wondering where on earth they were going to get to. The text-book gives us *pure* mathematics as such, *i.e.*, chains of deductive argument; the history shows us, rather, a kind of *impure* mathematics that makes use of many other types of argument in addition to those of strict logic.

The history of mathematics reveals to us the human side of the mathematical inventor; he by no means despises the arguments of everyday practice, and is often prepared to buttress pure deduction by arguments of a speculative, experimental, imaginative, empirical and, we may add, of an inaccurate kind.

To give an instance: the algebra text-book gives first a solemn demonstration of Euler's strict proof of the binomial theorem for a general index, and then it condescends to a few special cases of the general index. Newton, the discoverer of the binomial theorem, informs us that he arrived at the general case by speculating on what

$$(1-x^2)^m = 1 - m \cdot x^2 + \frac{m(m-1)}{1 \cdot 2} x^4 + \&c.$$

would mean when  $m$  was  $\frac{0}{2}$ ,  $\frac{1}{2}$ ,  $\frac{2}{2}$ ,  $\frac{3}{2}$ , &c., and that he tested his conjecture in the following simple fashion:—

If we put  $m = \frac{1}{2}$  in above expansion, we get:

$$(1-x^2)^{\frac{1}{2}} = 1 - \frac{1}{2}x^2 - \frac{1}{8}x^4 - \frac{1}{16}x^6, \&c.$$

But if we find  $\sqrt{1-x^2}$  by the ordinary rule for the square root, we get precisely the same result. Here is a partial confirmation of the truth of the theorem. As a matter of fact, Newton, I believe, never succeeded in finding a perfectly general proof, but was satisfied by the empirical truth of the theorem: it was true because it always came true. Newton published his results at the end of the third quarter of the seventeenth century; the strict proof was given by Euler in the third quarter of the eighteenth century, *i.e.*, 100 years later. Here is a case where the text-book tends to proceed from the general proof to the particular case, whereas the history shows us the advance from particular cases to the general proof. The teacher, clearly, has to advance both ways; he cannot keep his pupils waiting 100 years for a strict demonstration, but that is no reason why he should start with one. I do not say that in introducing a boy to the binomial for the general index the teacher is necessarily to adopt Newton's procedure; but I do say that Newton's procedure may be suggestive.

We are reminded that the old algebra text-

book consisted largely of chunks of dissimilar and often highly abstract demonstrations. You had a chunk on literal equations, another on cube root, another on scales of numeration, another on continued fractions, &c. Many of these chunks were excerpts from the works of great modern mathematicians who had set out to generalise in a more abstract manner the generalisations of their predecessors. They wrote as mathematicians for mathematicians, and were, no doubt, delighted by the elegance and brevity of their demonstrations. They were not catering for the schoolboy and the beginner.

The vigorous writing of some of our modern reformers of the algebra syllabus would find more supporters if an inquiry were made into the history of our various text-books. An inquiry of this kind proves most profitable if we examine into the history of the most famous text-book in mathematics—I refer, of course, to Euclid. To illustrate the light which the history of mathematics throws on method in teaching, I propose to say a few words about the controversy as to the teaching of elementary geometry.

What lies at the root of our objection to Euclid? Fundamentally, it is this: Euclid deduces by a strictly logical process results that were discovered by very different methods. Modern criticism has shown us that Euclid is as much a systematiser of previously discovered results as the inventor of new results. His method, on the whole, is not a method of discovery; it is rather a method of verification of a result *after* it has been discovered. His method is that employed in solving a rider: Given a right-angled triangle, and informed that the square on the hypotenuse equals the sum of the squares on the other two sides, try to insert the links of deduction connecting the facts given with the facts you want to prove. But how did you discover, in the first instance, the very relation you want to prove? How did you conjecture that the square on the hypotenuse *was* equal to the sum of the squares on the other two sides? To demonstrate the relation *after* you are informed of its existence is not so difficult. You know what to aim at. To discover the *existence* of such a relation was the great and the wonderful achievement.

Euclid's proof, then, is an *ex post facto* verification with the help of logical machinery of a result discovered by Pythagoras in quite a different fashion. With Euclid, Greek geometry culminates. He gives us the finished intellectual product. He is interested in logical system; the earlier Greek schools were interested not so much in the logical demonstration of eternal verities as in the discovery

of geometrical form. The suggestion for our method is obvious; it leads us to believe that a child's interest in geometry is at first rather in the discovery of geometrical form than in logical demonstration.

It will be interesting in this connection to review very briefly the development of the Greek geometry before Euclid. The earliest Greek geometry begins with Thales about B.C. 600. His successors are Pythagoras, Hippocrates, Plato, and finally Euclid about B.C. 300. The history of 300 years records the evolution of geometry from the results based on observation, experiment, and intuition—this was the geometry of Thales—proofs based on inductions from particular cases—this was the stage reached by Pythagoras; from him, again, to the growing strictness of proof ascribed to Hippocrates; then, on to Plato, who is the first to provide geometry with an array of definitions and postulates. Here geometry has got into the hands of the philosophers, who state for the first time the logical principles of mathematical deduction, and insist more and more on its separation from the merely vulgar needs of such practical people as navigators and land-surveyors.

Finally, after successive refinements in strictness of logical demonstration and systematic completeness, we arrive at the great system of Euclid. A Greek commentator says: "There is a natural progression from the imperfect to the perfect, from perception through the senses to reflection, and from reflection to intellectual cognition." This is, indeed, a summary of Greek geometry. The general view to-day is, I take it, that it is better for the child to start not with the perfection of logic in Euclid, but rather with the imperfection of direct perception in Thales. In fact, on behalf of the small boy, our modern watchword is: Postpone Plato; let's get back to Thales.

It will interest us then to inquire: What are the results ascribed to Thales. They are these:

(1) The  $\angle$ s at the base of an isosceles  $\triangle$  are equal.

(2) Vertically opposite  $\angle$ s are equal.

(3) A  $\triangle$  can be fixed by means of a side and two adjacent  $\angle$ s; the distance of a ship from the shore is found in this way.

(4) A diameter bisects a circle.

(5) The  $\angle$  in a semi-circle is a right  $\angle$ .

(6) Similar  $\triangle$ s have their sides in proportion; this result being employed in finding the height of the pyramids by observing their shadows at the moment when the angle of elevation of the sun was  $45^\circ$ .

These six results are quite remarkable in character; with the exception of (5), which seems to require or presuppose a knowledge of

the angle-sum property of a triangle, all these results are intuitively obvious. They form an inevitable first stage in the evolution of geometry, and it will be observed that they correspond almost exactly with the propositions that are now taken in a boy's first term at geometry.

For the teaching of geometry, then, the history of mathematics is highly suggestive. It shows us that results of a high order of generality or theoretical completeness were discovered by methods far more concrete and particular, and that it is just these methods which are suitable for the beginner.

### PRECEPT AND PRACTICE IN COMPOSITION.

By CLOUDESLEY BRERETON, M.A.

THERE has been a great improvement in the teaching of composition in English schools of recent years. The subject has been rendered more real and living by the introduction of oral composition, it has been more closely connected with history and literature, and the setting of abstract or remote topics, such as the invention of printing, has fallen into disfavour, while the æsthetic side so strangely neglected in the schools of a nation so sentimental as the English has attracted increased attention. And yet one cannot help feeling that the architectonic nature of the craft has not been adequately grasped by a large number of English teachers. It would seem that unity and oneness in design, with due subordination in detail, are still far from being their central preoccupation. Too often their pupils' work oscillates between a shapeless conglomerate of facts and a mixture of fluid inanities. Things and ideas appear to be jotted down just as they occur to the memory. There is little sense of order or continuity—in fact, one feels tempted to say that if Post-Impressionism be a new thing in painting, it has been practised in English schools for many years so far as essay-writing is concerned.

Now there has lately appeared in France, from the pen of M. J. Bezard,<sup>1</sup> a book, or rather two books, on the teaching of composition which every English teacher should study who wants to realise the potentialities of his subject. A mere treatise on the subject, like mere assertions, is apt to leave people cold; but here are two books, of 320 and 738 pages respectively, giving a detailed account, not merely of the methods employed, but of

the subjects selected for essays, with notes on the actual "stage directions" given to the class, and fair copies, often untouched by the master, of the whole or of portions of the boys' essays. The two volumes are the result of two successive years' work in a French lycée with the boys of fifteen and sixteen respectively, the latter group forming the class which works for the first part of the Baccalauréat. The books are further interesting as being the actual record of the work of boys who are on the modern side, and whose literary are supposed to be if anything subsidiary to their scientific abilities.

The root ideas of the books are few and simple. It is their application which is so valuable. Taking the first book as a sample, we find that each chapter is, as a rule, devoted either to an oral or written analysis, the composition of a story or an essay, and that in each the collection of adequate subject-matter, in the form of notes, and its arrangement and treatment are followed by a discussion on the actual compositions of the pupils, with specimen passages of their more successful efforts. The making of a regular skeleton or plan, with its various bifurcations, is naturally insisted on, and in order to learn how such a plan may best be made, a passage from some classical author is frequently taken, and its thought sequence analysed by the class. Such literary *précis* might with advantage be practised by our English pupils, in place of the often unsatisfactory paraphrase. They would thus learn in turn to analyse and classify their own thoughts, and put them in a proper logical order. The author, however, is careful to insist that the "plan" itself is not the end-all and be-all of composition. Taste, feeling, and imagination are necessary to clothe and animate the skeleton, and that clarity of expression which can only arise from clearness of thought. In a word, the pupil must be led to see "the colour of the images and feel the music of the sentences." All indeed are not literary by nature, yet if the teacher himself be a man of literary tastes, suggestion and sympathy will go far to bridge the gap. This is especially true if the class is made to work together as a team or collectivity, whether the objective be the classification of ideas or the search after something lacking in the harmonious ring of a sentence that otherwise seems perfect. By such practices the class's sense of rhythm is aroused and quickened, and rhythm is essentially that which gives "momentum" to the composition.

The opening chapter is an excellent object-lesson, taken from literature itself. It shows how Daudet first collects his materials, and then puts them into an artistic shape. After

<sup>1</sup> "La Classe de français. Journal d'un Professeur dans une division de Seconde (latin-sciences). De la méthode littéraire. Journal d'un Professeur dans une classe de Première." (Paris: Librairie Vuibert.)

this little *chef d'œuvre* in literary craft, we have the *résumé* of a short story to be expanded by the pupils, the pupils being largely encouraged to draw on their own experience. Then follows an analysis of a passage from Rousseau on his childhood, the notes in this case being kept for future use, when Rousseau will again be studied more fully in the class above. There is scarcely a chapter which does not contain some excellent literary hint. One composition deals with the sudden apparition of Charlemagne on his name-day at the lycée called after him. Some of the pupils give a long and detailed description of his appearance. Not so the author of the most highly commended copy. Instead of "sowing from the sack," he indicates one or two prominent traits and at once passes on, in order not to interrupt the movement. The same writer again, when speaking of the general stupor produced by the apparition among the pupils, focusses and fixes it by the remark, "The peeled oranges remained untouched in the dishes." Nothing, indeed, short of an earthquake or a ghost will stop the schoolboy at his feed.

Equally important in M. Bezard's eyes with the choice of ideas is their due classification, entailing the subordination of the less important to the more important, whereby the intolerable flatness to be found in some English essays is entirely avoided. Literary contour and relief are, indeed, a writer's best defence against boring his readers. Class libraries also are in high favour with M. Bezard, because he is convinced that bricks cannot be made without straw, and that literary composition when not based on direct observation must be based on reading, which reading again lends itself to analysing the technique of the writer, and finding out how he has "set out" his work. But the sources of direct observation are by no means neglected. Not only is the pupil expected to beat the bounds of his own experience, but he is directly encouraged to cross-examine and interview his friends and relations for "copy"—to play for the nonce the reporter. On another occasion a picture is exhibited in class, and the pupils are requested not merely to describe the actual scene, but give it life and reality by furnishing it with a definite and dramatic setting, translating into feeling and action the hints and clues furnished by the picture. The weekly task, however, is not always of the "forced draught" order. From time to time a very simple piece of thought-analysis is set, such as the dissection of a soliloquy from a play.

One regular essay a fortnight with these lighter interludes between is, in M. Bezard's

opinion, sufficient. M. Bezard is, in fact, a believer in the rotation of crops, with a definite system of literary *engrais* in the shape of abundant reading and preparation, which alone can render a good essay possible. The titbits and scraps that pass for essays in some English schools have no place in French schools for boys of this age. At times a harder subject is proposed, like an analysis of Legouvé's theory of memory, and on one occasion the pupils were set down to classify and comment on their own current defects and mistakes, either in handwriting, punctuation, spelling, or composition—not a bad idea, this self-examination of literary peccadilloes, but needing none the less to be very carefully carried out. Yet a further step forward is taken when the pupils, instead of being asked to analyse a scene of Molière, are set down to appraise and criticise the validity of its implications. Is, for instance, the portrait in the *Femmes Savantes* of the blue-stocking, a fair one? Another day a letter is proposed for composition—a far more formidable task than with us, owing to the subtleties of tone to be adopted according to the rank or age of the recipient, not to mention the thirty-six different ways of winding up the letter itself. There are many more degrees of heat and cold than with us on the thermometer of French politeness, which is, in fact, very carefully graded. Two *obiter dicta* are worth noting for English pupils—"Never be afraid of recalling the past to the aged. Memory is the breath of their life." And again, "Seek what will please—that is the law and gospel of politeness."

The professor makes a strong point of interesting the parents in their sons' compositions (it must be admitted the task is far easier in France than with us), and he even gets some of them to suggest subjects. One such subject was the choice of a career, which in France is "a family matter still more than one of individual preference (!)." Another suggestion took the form of "My earliest recollections of Corneille." With one or two boys it began at six years old. It is interesting to note that boys of twelve read Corneille for pleasure—delighted, no doubt, by the heroic and adventurous spirit of his characters. Further correspondence with parents brought out the fact that abstract subjects like "What is a moralist?" should be barred. On the other hand, "La Fontaine as a moralist" is commended as an excellent subject.

M. Bezard took on the same boys when promoted to the class above, which directly prepares for the first part of the Baccalauréat. In this form the essay is very largely confined to literary topics connected with the period



set for the examination. The second volume deals with the advanced work, and as such should be of the utmost value to English teachers as suggesting new or improved methods of treatment in the highest forms, while the results obtained with French pupils should fill them with emulation, if not with envy and despair.

For any teacher fully to profit by such books, it is essential that he should go over them carefully chapter by chapter, as the effect is cumulative. The most valuable and convincing portions are the specimens of the pupils' actual work, and these are just the parts it is most difficult adequately to set forth in an article. One illustration, therefore, must suffice. It has been deliberately chosen because it represents a fair average level. There are many better things in the book. It is taken from an essay on the first volume on "the apparition of Charlemagne" (already mentioned), and relates how one of the pupils in "Seconde B" (Latin—Modern languages section) discusses with that august person the future of modern languages, which have become so numerous one scarcely knows which to choose.

— Autrefois, sire, vous éprouviez le regret de ne pas les savoir toutes! Que diriez-vous aujourd'hui? Vous comprendriez encore quelques mots de la langue saxonne, devenue celle d'un puissant empire; vous retrouveriez dans l'espagnol et l'italien des traces vivantes du noble latin! Mais l'anglais, Sire, l'anglais, la langue que parle la terre entière. . . Excusez-moi, mais je ne puis m'empêcher de rire en songeant à votre ahurissement dans les rues de Londres ou de New York. "Aoh! yes!" c'est le cas de le dire!

— Voilà des noms, en effet, qui me sont bien étrangers: Aix-la-Chapelle n'est donc plus le centre du monde?

— Le centre du monde, Sire! Mais il est partout et nulle part! La Terre est un globe immense dont nous avons fait le tour et dont l'humanité inquiète se dispute les derniers déserts. Il faut, pour garder aux Francs une place au soleil nouveau, que nous apprenions à connaître le monde entier qu'il éclaire! La vraie science n'est plus le latin, Sire, non, même plus la théologie; la science qui doit surtout nous conduire dans la vie, la science du pain quotidien, pour les élèves comme pour les peuples, est celle qui nous indique où le blé pousse et où il se vend, et où nous pourrions en trouver, demain, pour nos descendants; la vraie science, Sire, c'est la géographie!

— Voilà certes qui confond toutes mes idées sur le monde! Bref vous vous préparez ainsi à devenir . . . comment dit-on? . . . un voyageur à la langue déliée, un Ulysse . . . un. . .

— Un globe-trotter, Sire; l'avenir est là! Ulysse est, en effet, un des rares modèles antiques qui ne soient pas bons pour les musées. Ulysse serait moins

*emprunté* que vous dans notre société commerçante. Ulysse deviendrait milliardaire en dix ans; il lancerait de splendides *business*; il serait tout à fait moderne, et sûrement il mettrait Télémaque dans la section B!

The slang at the end has been left uncorrected by the teacher.

## THE HEALTH OF SCHOOL CHILDREN.<sup>1</sup>

THE fourth annual report of the medical officer to the Board of Education covers the year 1911; but, appearing some two months later than that for 1910, contains several references to results attained so recently as the earlier half of 1912. Generally speaking, it follows closely on the lines of its predecessors; and Sir George Newman's introductory chapter describes the report as a summary of the work done, rather than as an appreciation or searching criticism of the results achieved by the several authorities and their officers.

Three tendencies appear to mark the work of the year under review. First, there has been a natural development of the efforts of the local educational authorities to provide facilities for the treatment of children whom inspection has shown to be ailing or defective. This remedial work will be further encouraged by the Exchequer grants which have now been sanctioned to this end. It also appears that many authorities are awakening to a more comprehensive view of their responsibilities:

They realise that the prescription of drugs, the performance of operations, and similar forms of remedial treatment do not necessarily go to the root of the matter or cover the whole field, and that any effective scheme for the upbringing and equipment of the sub-normal child must involve the liberal use of such preventive and curative means as physical exercises, provision of meals, manual training, and special and improved methods of education.

Secondly, a large number of authorities have felt themselves compelled to extend their interest in school hygiene beyond the actual limits of the children's attendance at school. (The term school hygiene is here used to cover all measures concerned with the health of the school child.) Thus, in consonance with the policy set out in several of its more recent memorandums, the Board of Education is endeavouring to make the hygienic condition and care of the pupil more assured by attention to the improvement of its environment—the domestic and physical conditions of its life—before it attains the school age of five years. Hence has arisen, amongst other

<sup>1</sup> "Annual Report for 1911 of the Medical Officer to the Board of Education, 1912." 334 pp. (London: H.M. Stationery Office.) 1s. 5d.

things, the cult of what is known as "mothercraft," which is credited with having an indirect, but not the less a distinctly beneficial, effect upon the health and upbringing of young children before they come under the immediate care of the school authorities.

Of no less practical importance is the consideration of the conditions and circumstances of the employment which the child will have to face on leaving school, and for which it is a duty of the school to prepare him. Much of the work accomplished along both these lines is dependent upon the aid afforded by various voluntary helpers. Connected with this, also, is the consideration of the partial employment often undertaken by elementary-school children during their out-of-school time; its effect upon their physical welfare and their educational capacity, and its influence upon their willingness and their ability to secure regular employment on leaving school.

The medical inspection of all children about to leave school is required by the Code, and upwards of half a million such children were examined in 1911. As I have previously pointed out, this "leaver" group is of the greatest importance for various reasons. First, it is the only group—a sort of index or test group—in which are manifested the final school results of the practice or neglect of hygiene during school life; secondly, it is the group most nearly related to the adolescents of insurable age under the National Insurance Act; and, thirdly, it is the group which brings medical inspection into direct practical relation with the question of the employment and after-career of the child. Upon the results of this examination great issues may depend, from the point of view both of education and employment.

It is difficult and unsafe to attempt brief generalisations as to the degree of defect found among "leavers" as a result of medical inspection. A large number of typical returns, both for counties and towns, for 1911, indicate, however, that it may be said that from 30 to 40 per cent. of the leaving girls suffer from unclean heads (*Pediculosis capitis*), about 10 per cent. of all leaving boys and girls have a serious defect in vision, not less than 1 per cent. have tuberculosis recognisable by clinical methods, about 40 per cent. suffer from extensive and injurious decay of the teeth (speaking generally only 20 per cent. have sound teeth), about 3 per cent. are returned as deaf, and from 1 to 2 per cent. suffer from some form of heart disease.

Thirdly, the experience gained during the year emphasised the importance of bringing the school medical service of every area under the jurisdiction of the local educational authority, the school medical officer of which should be placed in such a position as will ensure his being really responsible for the unification and administration of all the various contributory activities concerned in promoting a

healthy child life. Thus in each area there are six main branches to be co-ordinated under one and the same administration, viz., medical inspection; medical treatment; sanitation of schools; provision and management of special schools for the defective; the teaching of physical training and the personal hygiene of childhood; and the feeding of school children.

The coordination of the school medical service with the public health organisation has considerably extended, and appears, on the whole, to be satisfactory. Of the 943 medical officers engaged in the school medical service, seventy-four are women doctors, working in forty-seven different education areas.

Medical inspection seems to have been satisfactorily grappled with, and the schedule originally suggested by the Board is said to have worked well. During the year ending July 31st, 1912, about a million and a quarter entrants and leavers were inspected: while at least a quarter of a million of ailing and defective children were specially inspected, apart from the requirements of the Code. Moreover, in more than a hundred areas, arrangements were in action for the inspection of groups intermediate between the entrants and leavers. Several authorities have completed the inspection of all the children on their rolls.

The relation of medical inspection to juvenile employment has already been alluded to. Its importance is not lessened by the fact that, in accordance with the provisions of a long series of Factory Acts dating from 1802 to 1911, and of the various Education Acts, beginning with that of 1870, there are practically four groups of employed children partially or wholly exempt from school attendance:

- (1) Young persons above 14 years of age.
- (2) Children under 14, but above 12, wholly employed, as possessing a labour certificate.
- (3) Children under 14, but above 12, partially exempted (the so-called "half-timers").
- (4) Children in attendance at school, but employed out of school hours.

Speaking generally, it is estimated that some 450,000 children annually pass out of the State schools at or about the age of fourteen. The number of children who pass out every year as possessors of a labour certificate is upwards of 211,000; the number of "half-timers" is estimated at any one time to be about 35,000; and the number of school children employed out of school hours is probably not less than 200,000.

Without entering into the large general question of unemployment, these facts raise several important issues which gravely affect our national capabilities.

It is matter of common knowledge that a large proportion, possibly upwards of 50 per cent., of these employed children are engaged in "unskilled" work, and that nearly all of the children employed out of school hours are so occupied.<sup>2</sup> The variety of occupations is, of course, very great, but this is of minor importance compared with the fact that we have, on the one hand, for both boys and girls, an extensive development of more or less casual employment of an uneducative character, yielding relatively high wages, but having no safeguards and providing no training for future proficiency; and, on the other hand, we have not only a decline, amounting almost to disappearance, of the apprenticeship system, but a shrinkage of the occupations in which boys may, under appropriate supervision, be trained physically and mentally to become competent workers.<sup>3</sup> The real seriousness of the situation is not that a large number of these children enter unskilled trades or do unskilled work, though the evil of this may in itself be considerable, but that provision is not being made for the all-round efficiency and equipment of the child for future needs and future capacity and competency. Boys and girls are being spoilt physically, mentally, and morally by their too early emergence into the ranks of the employed, by lack of guidance in the choice of occupations suited to their capacity, by inadequate opportunities of skilled training, and by insufficient safeguarding and husbanding of their physical powers and resources. Here is the place where medical inspection, medical treatment, and school hygiene in its largest sense should be brought into direct application in relation to industry. Unless the school doctor is in a position to guide and advise from the physical point of view in regard to questions of the employment of the child at or about the time of leaving school, he is not fulfilling his whole duty, and is not justifying one of the particular reasons of his existence in the State. The medical care of the school child properly exercised and appropriately utilised is a proposition which is sound and economical in the best sense of the term—for it is nothing less than the physical equipment and preparation of the child for its industrial life. It was the absence of this supervision which in former times led to gross neglect and even cruelty in connection with the factory employment of children. It is the failure to provide such supervision in our own times which furnishes the occasion for wastage in unsuitable employment, for illegal occupation, and for a large amount of general inefficiency. Recent inquiries have furnished abundant evidence of the fact that numbers of children employed for the first time after leaving school break down physically from heart trouble, tuberculosis,

nervous conditions, and general debility. Many others are handicapped by defective vision, or are debarred from employment by being undersized or lacking in general strength. Deafness, mental dullness or deficiency, stammering and lameness are frequent causes of rejection or early dismissal; and to this already formidable category must be added uncleanness, slovenliness, and general "sloppiness." Others are too young and inexperienced to undertake formal employment in factories, though there is no restriction against their employment in unregulated occupations, such as parcel carriers, &c.

It has recently been shown that the accident risk of children and young persons is considerably higher than that of adults.<sup>4</sup> There is also great risk of overstrain through the carrying of weights. Evidence was given before the Accidents Committee of children in Bolton of twelve years of age carrying 18, 26, and 30 lb., and of girls of thirteen carrying 18 and 29 lb. The certifying factory surgeon for Burnley said that in that town children carry up to about 25 lb., and young persons over 30 lb. He further thought that the carrying of "pieces" by children upstairs was a cause of heart strain.<sup>5</sup> In view of these facts the Committee emphasises the importance of the medical examination of children and young persons for the purposes of eliminating the unfit from factory work, of discovering symptoms of weakness which need attention or treatment, and of controlling the work in which children and young persons are employed.<sup>6</sup>

It has been shown that excessive employment is injurious alike to the education and the health of children under 14: while moderate work, under suitable conditions, is not only not injurious, but may be, and often is, positively beneficial. The practical (and debatable) question is as to the point at which moderate employment ends and excessive labour begins; and as to the view to be taken of those cases where employment, though physically beneficial—or, at least, not physically harmful—interferes with education. In this connection the report of the Inter-departmental Committee on the employment of school children (1901), and the investigations more recently made by Dr. J. C. Thomas in 1905 into the physical conditions of "half-timers" and children employed out of school hours, furnish some suggestive evidence. A careful analysis of the results observed amongst the 400 boys (workers and non-workers) in fourteen elementary schools in London show that:

Whereas even work of twenty hours or less has an appreciable effect in increasing the amount of disease, there is a very considerable increase in those working more than twenty hours. In this inquiry it was found that boys who commenced work under the age of

<sup>2</sup> A return prepared by the London County Council showed that for the children who left school during the educational year 1906-7, 67.9 per cent. of the boys and 38.7 per cent. of the girls were occupied in "unskilled" employment. A similar return for the following year (1907-8) gave 61.0 per cent. and 34.1 respectively. In this return, which deals only with the first form of occupation and not the ultimate employment, there does not seem to have been any uniformity in determining whether an occupation was skilled or unskilled. (Minutes of L.C.C. Proceedings, November, 1909, pp. 912-26.)

<sup>3</sup> Dr. Cooper Patten, of Norwich, reports that of 662 boys leaving school the percentage passing to skilled employment was 29 from "better class" schools, 21 from "mixed class" schools, and 11 from "poorer class" schools.

<sup>4</sup> Report of Departmental Committee on Accidents in Factories, 1911 (Cd. 5535), p. 19.

<sup>5</sup> *Ibid.*, p. 33.

<sup>6</sup> *Ibid.*, p. 53.

eleven years suffered more severely than those commencing later; indeed, many of these younger boys had broken down and been obliged to give up work or change their employment. Differences of ill-health were found to be dependent in part upon the character of the employment.<sup>7</sup>

Investigations made during 1911 in Surrey, Middlesex, Blackburn, Colchester, Gravesend, Liverpool, Southport, Bromley, Oxford, and Birmingham all point in the same direction, while emphasising the distaste and disability for regular employment engendered by this early addiction to casual labour.

As regards tuberculosis, the insufficiency of existing arrangements for the treatment of these cases in school children is again dwelt upon. The provisions of the Finance Act, and (indirectly) the provision of sanatorium benefit by the Insurance Act, should help to lessen the difficulties which at present stand in the way of securing adequate treatment for such children. The chief points recommended to the consideration of educational authorities are as follows:

(1) Improved arrangements for securing the detection and diagnosis of the disease among children, possibly in association with the Tuberculosis Dispensary when such exists; (2) the provision of additional accommodation for residential treatment, particularly of "surgical" cases; (3) an extension of open-air teaching by means of open-air schools, playground classes, &c., and, if possible, by the establishment of "night-camps"; (4) the need for systematic and prolonged after-care and following up. The importance of attacking the disease in childhood cannot be too often repeated, and the fact that the infection, at least in pulmonary cases, is frequently slight in degree, and that spontaneous recovery often occurs, does not mean that effective treatment is not required.

There is an excellent section on dental disease and dental treatment. Our teeth have come to be regarded as the special property of the dentist by reason of the extent to which the real basis of oral hygiene has been misunderstood and neglected by both parents and doctors. "It cannot be too clearly emphasised that by far the most important factor in the production of dental caries in children is unsuitability in the character of the diet provided from infancy upwards." It is rightly pointed out that prevention of this serious menace to national efficiency must necessarily be but slow; it can be brought about only through education and by a change in the dietetic habits of the people. Meanwhile, action along other lines is immediately called for, and it cannot

be withheld or delayed while gradual improvement in knowledge and habits is being acquired; such action must be directed especially "to the treatment of dental decay upon its earliest manifestation in the newly-erupted teeth of the permanent set."

A valuable section on the education of the feeble-minded should reassure those who have been alarmed by the recurrent scares in connection with this class of mental deficiency. The results achieved are proportionate to the care and thoroughness devoted to the subject. Of the children who pass through these special schools, the proportion who secure employment varies from 45 and 42 per cent. under the best management to 28 per cent. under less effective supervision.

Amongst the eight appendices is one which draws largely upon the valuable report of the British Association Committee on the Influence of School Books upon Eyesight.

## THE TEACHING OF DRAWING.<sup>1</sup>

By E. M. CARTER.

Whitgift Grammar School, Croydon.

THE recently published Report of the L.C.C. Conference on Drawing contains both the majority and minority reports of the conference. As the minority report is signed by only five members of the conference, it may be assumed that the remaining fifty members endorse the majority report. This substantial majority, numbering among its members artists, art teachers and workers, and educational experts of acknowledged standing, is thus one whose expressed opinions on the subject of the reference are entitled to every respect and consideration.

In the "foreword" to the majority report the compilers say:—

After in part investigating the subject of the reference, it was increasingly felt that the issue of a syllabus emanating from the conference might tend to cripple the teacher, and to produce a very undesirable uniformity of work. Our report has, therefore, taken the form of a memorandum, based upon the results of our deliberations and upon the papers read to us. This memorandum, we think, contains the underlying essentials pertaining to instruction in drawing, and we trust it will prove helpful to teachers both in formulating their syllabuses and in putting them into practice.

After commenting on present methods of teaching and expressing approval at the disappearance of the old drawing "copies" and at the modified use of the much-abused geometrical models, the "foreword" concludes

<sup>7</sup> Departmental Committee on the Employment of Children Act, 1905. Minutes of Evidence with Appendices (Cd. 5230, 1910), contains evidence and returns furnished by Dr. Thomas and Dr. H. E. E. Jones. Dr. Greenwood, of Blackburn, has made extended inquiries into the subject (see Annual Reports of School Medical Officer for Blackburn, 1908-11, also Report of Inter-departmental Committee on Partial Exemption from School Attendance, Vol. iii. (Cd. 4887), 1909, Appendix No. 10, p. 282).

<sup>1</sup> "London County Council: Reports of a Conference on the Teaching of Drawing in Elementary and Secondary Schools." (King.) 11.

with a paragraph on the teaching of young children, which is peculiarly significant in view of the opinions set forth in the minority report :—

In the case of very young children there appears to be a strong reaction against earlier methods—a reaction inspired by psychological investigation. We sympathise with every effort that tends to create an atmosphere in which they will be a ready, sympathetic response to the quickening intelligence of young children, but we feel that the scientific study of the child mind is so recent that it cannot be said with certainty what type of drawing instruction is best for the youngest pupils.

The majority report is divided into five parts. Part i. deals with the purposes of the drawing lesson and discusses methods in so far as they affect young children. In this connection a distinction is drawn between formal and informal practice. The first must be directed towards attaining accuracy of eye and hand; the second includes those forms of drawing by means of which children give expression to their memories of things seen or imagined. These drawings, it is remarked very properly, should not be judged according to their strict accuracy, but rather according to the evidence that is shown of original observation and thought. The report continues :—

So far as very young children are concerned, we think it desirable that drawing should be taken in all classes in infants' schools and kindergarten, and that the teaching of drawing should follow the course of the child's natural development. This will necessitate the use of drawing among such young children as a mode of expression bound up with the interests which especially appeal to them. In this connection we feel that the entire divorce of the drawing lesson from things that interest children, from nature and from storyland, has in the past deadened the awakening mental activity in the child. We are of opinion that these fields of subject inspiration are the best to draw upon.

As the child grows older, formal lessons should be introduced more freely, but the criticism should be light. The best efforts of young children, *i.e.*, those up to the age of ten years, should be accepted by the teacher without discouragement, any errors in the children's work being attributable to imperfect observation or to the weakness of powers of expression natural to childhood, and best corrected by further practice and subsequent experience.

Part ii. opens with a note on the use and abuse of drawing from the "flat," and, in commenting on the tendency to substitute drawing from objects for drawing from the flat, remarks :—

While agreeing that this tendency is a healthy one, we think that the pendulum has swung too far, and that in exalting the importance of drawing from

objects, the disciplinary value attached to copying from the flat has been overlooked. We think that drawing from the flat under suitable restrictions is a most valuable exercise, the restrictions we have in mind applying mainly (i.) to the means employed by the pupil in making the copy, and (ii.) to the suitability of the copy itself.

Copying has been abused, and there is some excuse for the present reaction against it; but copying gives an insight into the way in which other people have expressed themselves, and, if intelligently done, has great value.

With this conclusion, perhaps, most practical teachers will agree, though the opinion of the theorists finds expression in Dr. Slaughter's paper on drawing as a means of expression. Speaking of principles which should be applied to a course of drawing instruction, he says :—

The abolition of copying. This is mentioned for the sake of the specially benighted, as copying is no longer used in modern schemes of instruction. The thing copied is perpetually a Frankenstein monster to the student.

Dealing with the question of object-drawing the report, after stating its conviction that object-drawing should not be confined to the senior classes, but that it should be taken throughout the school, goes on to discuss the kind of objects to be selected; the rules of perspective; and the use of geometrical models. Of perspective it says :—

To begin by teaching the rules of perspective is to hamper rather than assist. The children should express the object as it appears to them and should be led, by judicious examples, to discover rules for themselves. They should not try to fit their drawings to rules dictated by their teacher; we think that the facts of perspective should, so far as possible, be observed and deduced by the children themselves.

After emphasising the importance of proportion and deprecating the too liberal use of construction lines, the report devotes several paragraphs to the training of the sense of colour, which can be profitably considered in conjunction with Mr. Millar's paper on that subject, given in the appendix.

The paragraphs dealing with design in this section, together with the late Mr. Lewis F. Day's admirable paper on design, form a most valuable contribution to the question which has long agitated the minds of drawing teachers as to the advisability of attempting to teach design to children of school age. From Mr. Day's sound and ordered statement of the case we may quote the concluding paragraphs, which very adequately sums up the situation :—

Nowadays, everyone is insisting on the study of nature. If others were not doing so I should be doing

it. As it is, I want to insist upon the study of ornament also. I would make children acquainted with good ornament as well as with nature—all the more because they are probably more inclined to look at nature than at art, and because nature does not teach *the use to make of nature* in design. We learn that from art. The notion that we get everything from nature, or out of our own heads, is a pure superstition. Design is in great part memory. Let children store their memories with what is good both in nature and in art, then let them do something of their own. It will be none the less good for the memories of good things in it. The first step towards design is to know how others have designed—we learn by copying.

Don't ask or expect originality from children. Let them begin by copying. Set them to do something which does not ask invention. Allow them to depart from the lines given, let them modify, or adapt, as it occurs to them, and that will lead on to their doing something which is in a measure their very own. As they discover they can do that, they will want to make it more and more their own. So they will grow into design, and their originality will be developed—in the natural way.

The possibility of all design teaching depends, as I began by saying, upon the teacher. Design is only to be taught by those who know something about designing—more perhaps, than ordinary drawing teachers can be expected to know about it. But it would be a great pity if teachers who could get something out of their pupils in the way of ornament were in any way hindered from doing so on the grounds that others can't. It would be an equal pity if pupils with a bias in that direction were in any way discouraged. It would be a greater pity, still, if those who can't get anything out of children in the way of design were asked to teach it, or if design teaching were put into the hands of those who know no more about it than the great number of general teachers can be expected to know.

The recommendations of the Report in this connection are to the effect that, as original design demands an intimate acquaintance with the forms of nature and a knowledge of what has been done by past masters in design which it would be useless to expect to find in children of school age, a scheme is desirable of which the copying of standard works and the adaptation of existing designs form the foundations.

Part ii. deals also with scale drawing, memory drawing, modelling, calligraphy (supported by an excellent article by Mr. Graily Hewitt), and concludes with suggestions on plant drawing and outdoor work.

Parts iii., iv. and v. deal respectively with correlation of drawing with other subjects; the time given to drawing and size of classes; and environment and materials.

The Minority Report occupies ten pages, and the appendix contains (in addition to those

already mentioned) papers by Prof. Adams on "Drawing in Training Colleges"; Mr. J. D. Batten on "The Educational Value of Drawing in Elementary Schools"; Mr. Henry Wilson on "The Scientific Study of the Child"; and a stimulating address by Sir W. B. Richmond.

In a brief introduction the chairman, Mr. W. B. Dalton, remarks: "Unanimity has not been achieved, but the matter of both Reports is the result of assiduous care and labour. It is hoped that they will be an important contribution to the study of drawing and of assistance to those who give instruction in this subject."

There is no doubt that teachers of drawing will find in these Reports many sources of inspiration, and, at the same time, ample food for very serious reflection.

#### PERSONAL PARAGRAPHS.

THE West Ham Education Authority has appointed Miss Hilda Hudson as professor of mathematics at the Borough Technical School at Stratford, at a salary of £200 a year. Miss Hudson is at present research fellow at Newnham College, Cambridge.

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THE REV. THOMAS FIELD, Warden of Radley, has been appointed to the vicarage of St. Mary, Nottingham, in succession to Bishop Hamilton Baynes, who is appointed to St. Philip, Birmingham. Mr. Field was educated at King's School, Canterbury, and Corpus Christi College, Oxford, and was a fellow of Magdalen College, Oxford. For eight years he was a master at Harrow, and for ten years headmaster of King's School, Canterbury, after which he was appointed Warden of Radley early in 1897.

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MR. FRANK FLETCHER, the headmaster of Charterhouse, has been elected chairman of the Headmasters' Conference for 1913. He was educated at Rossall and Balliol College, Oxford; he was a master at Rugby for nine years, after which he succeeded Canon Bell as Master of Marlborough; at Charterhouse he succeeded Dr. Rendall. In overcoming the difficulty of following two such men, he has greatly distinguished himself; he impresses one as quiet, keen, and strong, and should prove a power in the councils of the Conference.

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THE REV. J. D. DAY, of Warwick School, has been appointed headmaster of the Grammar School at Stamford. He was a scholar

of Hertford College, Oxford, and took third class Classical Mods. and fourth class Lit. Hum. From the University he went straight to Warwick School as a master, and remained there until he was appointed to Stamford.

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AFTER the meeting of their executive committee of March 1st, the members of the Incorporated Association of Assistant-masters held a dinner at Anderton's Hotel in honour of Mr. Fred Charles, whose work for the association extended over many years. Among the many former officers of the association present were Mr. J. H. Bray and Mr. J. Whitehead, who were elected honorary members of the association in January.

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MR. WHITEHEAD, formerly science master at Berkhamsted, was for some years honorary secretary of the association, was largely responsible for the establishment of the association's benevolent fund and for the foundation of its provident fund; he was also associated with Mr. Charles in the preparation of the report on the conditions of service of teachers in secondary schools of this and other countries. Mr. Whitehead has since been called to the Bar, and as a junior has distinguished himself already in a not unimportant case.

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THE central figure in educational politics just now is Lord Haldane. Since his Manchester speech educationists awaited with interest his next utterance on education. He spoke at Weston-super-Mare on the occasion of the annual conference of the National Union of Teachers, and again at a meeting of teachers in the Secondary and Technical Schools of London, held at the University on March 29th. He is chairman of the Royal Commission on the University of London, a University in which he has formerly shown great interest. He is thoroughly conversant with the German system of education; as a Scotsman he believes in education, so that it is not an unreasonable hope that a Government scheme put forward by him will be for the great improvement of education in this country.

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THE resignation is announced of Mr. Chettle, headmaster of the Stationers' Company's School, Hornsey. Mr. Chettle, who has realised the difficulty of retaining his boys at school until eighteen years of age, has frankly recognised the disadvantage to the boys when there are only a few such, and has generously recommended those who might have remained with him to go to other London schools; of these, many have done well, and, in recent years, two have obtained the first place in open

competition for Civil Service intermediate clerkships. Mr. Chettle was for many years an active member of the Headmasters' Association and of the College of Preceptors. He spoke seldom, but always forcibly and directly to the point. The best wishes of his many friends go with him in his retirement.

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ASSOCIATED with Mr. Chettle at the Stationers' School as senior master has been Mr. P. E. Swinstead. Next year Mr. Swinstead will complete thirty years' service at the school. He was one of the earliest members of the Assistant-masters' Association, of which he was for two years honorary secretary and for one year chairman. He has devoted a great deal of attention also to music, and has earned some distinction as an organist.

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THE legal liability of a master for the welfare of his pupils has again been under consideration. A parent brought an action for damages against the Essex County Council and one of their teachers, Mr. Linch. A boy pocketed a piece of phosphorus, and was burnt in consequence; it was shown that the class had been warned of the nature of phosphorus in a previous lesson, and that it was against the rules for boys to retain chemicals. Mr. Linch was entirely exonerated from blame.

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MR. E. W. DUNN, of King Edward VI. School, Stourbridge, and formerly of Felsted School, has been appointed headmaster of King Edward VI. Grammar School, Saffron Walden. Mr. Dunn was educated at Oxford High School and Felsted; he graduated at Oxford, and was trained there. From Oxford he went to the Manchester Pupil Teachers' Centre, then to the Manchester Municipal Secondary School, and afterwards to Reigate Grammar School.

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THE REV. F. H. HENRY, the second master of Hurstpierpoint College, has been appointed headmaster of King's College, Taunton. Mr. Henry held masterships at Durston House, Ealing, Berkhamsted, and The Grange, Folkestone, before going to Hurstpierpoint in 1906.

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MR. W. E. CROSS, headmaster of King's School, Peterborough, is now going to Maidstone Grammar School. Mr. Cross has had experience in a number of schools; for two years he was a master in the Hulme Grammar School, Oldham, for a year at the Crypt Grammar School, Gloucester, and at Lancaster Grammar School; he was senior science master for a year at Oldham and for

two years at Felsted. For some six years before going to Peterborough he was at the Whitgift School, Croydon, where latterly he was senior science master and house master.

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THE death is announced at the age of seventy-three of Mr. C. R. Hodgson, for many years secretary of the College of Preceptors. He was a man of great energy, and had for thirty-nine years devoted it to work for the College. But this was not by any means his only interest; he was a keen chess-player, an extensive reader, an untiring walker, and latterly a cyclist of considerable distances. His wonderful vitality enabled him to carry his years so that few who met him realised his age.

ONLOOKER.

### TECHNICAL EDUCATION IN LONDON.<sup>1</sup>

THE establishment of a system of technical education may, in the main, proceed along one or other of two general lines of action. It may, as is usual in new countries or in countries the industrial system of which has been arrested, seek to foster, or to ally itself with, industrial and commercial enterprise, advising the industry, providing technical information for those who can immediately turn it to profit; or it may, as is common in countries with a highly developed industrial system, be satisfied with teaching wage-earning or salaried students the principles (and their application) which underlie industrial and commercial processes.

The scientific stations and brewing schools established in Germany with the object of developing the brewing industry are interesting examples of the direct method. Scientific stations were established, notably a great one at Munich, to which "the technical problems which confronted the practical brewer could be referred, and where these problems were solved."<sup>2</sup> The work of the Department of Agriculture and Technical Instruction for Ireland in its expert aid to agriculture and rural industries, the research carried on at the National Physical Laboratory at Teddington on behalf of navigation of air and sea, the work of the experimental mine at Birmingham University, and of chemical research upon commercial products at the Imperial Institute, may be mentioned as illustrations of the direct policy in these islands.

In the main, however, the technical education in England (including London) provided by the schools under local education authorities, and has been confined to instruction of students—some employers, mostly the employed. Aid was to the individual: whether he transformed the aid into assistance to an industry depended on the student and his opportunities, and not on the technical school. At the same

time, however, it must be remembered that outside the schools, a great work of direct technical education is carried on by means of exhibitions, congresses, trade journals, and advisory bodies of all kinds.

Technical education in England originated in public concern as to industrial competition, and it might, on this ground, have been expected that technical education would, in the main, have followed the direct policy. It cannot, however, be said that the direct policy was deliberately abandoned, or that the indirect policy was deliberately chosen as best in the public interest. The movement was headed, not by manufacturers and merchants, but by educational reformers; a highly developed and complex industrial and commercial system had been built up by the energy and intelligence of individual as distinct from national effort, and only a catastrophe could have prepared the way for any great sudden change. In spite of the work of the Royal Commission on Technical Education, it could scarcely be said that a national policy was thought out on a scientific plan. There was a flood of information as to what was being done elsewhere; public feeling had to find relief; some money was forthcoming; and local education authorities took up the work, frequently with enthusiasm, and often, as was necessarily the case, under indifferent advice. Buildings were erected, students came (whether the right kind or not did not matter), and teachers, no doubt the best that local education authorities could find, began work. And in spite of much wastefulness of money and of much widespread and ill-advised, if not ignorant, teaching on technical subjects (e.g., agriculture), a system of schools has grown up which has done an enormous amount of useful work. The schools have taken a set on the indirect lines; but their teaching seeks after and is gradually gaining the confidence of industry and commerce to-day. All institutions value the co-operation of trade, industry and commerce, and a good many actively seek for it. All now understand that technical instruction cannot supersede, and that it can only supplement, the factory, the workshop, or the counting-house; and, as a rule, details of buildings, equipment, and teaching have in recent years been based on this principle.

There are to-day in London few institutions of importance which could not show that in original research, in technical advice, in offering or criticising designs, or in undertaking tests, they have not been of much direct assistance to some local trade or industry. Conspicuous instances among "aided" institutions are the Northampton Polytechnic in Clerkenwell in its relation to the optical industries, and the Leathersellers' College in Bermondsey in its relation to tanning; and among institutions maintained by the council are the School of Photo-Engraving and Lithography and the Central School of Arts and Crafts.

The education of students seeking their own improvement, rather than the enlightenment and guidance of industry and commerce, has formed the main work of technical institutions—in the day in professional schools, the education of all who satisfied an examination test (and of some who didn't) and could

<sup>1</sup> From a "Report on Eight Years of Technical Education and Continuation Schools" presented to the Education Committee of the London County Council (London: P. S. King and Son.) 25. 67.

<sup>2</sup> "Education and Empire," p. 9. (R. B. Haldane.)



pay the fees; in the evening in trade classes, the education of students engaged in the trade concerned.

In most of the older universities, in all the newer ones, and in all the more important technical institutions of the United Kingdom, great technical departments have been established within the last twenty years, mainly by the enterprise of senates and governing bodies, to meet a public demand; often supported by private donations and always fashioned and moulded by public criticism and by the permanent body of educational experience which has emerged from the efforts, profitable and wasteful alike, of the technical education movement. The principal object of these departments is to do for industry what the older universities and colleges have done for law, medicine, theology, politics, and statesmanship. In London, work of this kind is done in the Imperial College of Science and Technology; in the university colleges (University, King's, East London); in Finsbury Technical College; in the day departments of the polytechnics, and in the Leathersellers' College. There is considerable variety, both in aim and quality of work; but all alike seek to train something more than intelligent and skilled workmen.

Some technical institutions have succeeded in establishing co-operation between firms of employers, their apprentices and learners, and the technical institutions.

As a rule, the students are seeking instruction which will increase their occupation efficiency. In some technical institutions much work of a non-industrial character (*e.g.*, instruction of all kinds to teachers seeking to add to their qualifications) was undertaken. The growing completeness of the educational system during the last decade, the better general education of the teacher, the improved work of the training colleges, and newer ideals as to bringing teachers into close relationship with the universities, have dispensed with the need for much of the instruction to teachers at technical institutions; and some of the institutions must seek new and more technical fields for their energy, or else close departments of their work.

In recent years, two problems of much importance have arisen in connection with the character and organisation of the instruction: (i) the general character of the instruction, and (ii) liberty of choice as to subjects and number of classes on the part of the students.

(i) As to the first, there is no cessation of the struggle between the ideals of technical and general education. "On the one hand, as a workman, whether with head or hand, the student must obtain the technical qualifications required to maintain him in independence or to advance him in life. On the other hand, as a member of a self-governing nation, he must acquire the civic qualities which enable him to co-operate with his fellows, and to judge wisely on matters which concern not only himself but the whole country to which he belongs."<sup>3</sup>

It is becoming clearer that technical and general education are not mutually exclusive, but comple-

mentary, and that the best education for the citizen will be found in a well-balanced proportion of education for livelihood and education for life.

(ii) The second problem—the liberty of choice as to subjects and number of classes on the part of the students—has been much discussed.

It must be remembered that attendance at evening institutions is voluntary; that there are many attractive competitors for the students' interest and attention; that the hundreds of evening institutions have acquired certain habits and attitudes; that a student refused at one institution may be received at another; and that the problem of falling attendance must be a constant anxiety to the staff. It will, therefore, be readily understood that it would take some time for an important new principle which would, one way or the other, profoundly affect attendance, to obtain general acceptance with students and staff, and that in the absence of a general requirement only courageous principals or responsible teachers would try experiments. Experiments have, however, been tried, and there is no doubt as to their success. The principle has in the last two years secured many adherents; the more cautious heads are following the lead of the more courageous.

The Education Committee is of opinion that the council should aim at a general introduction of organised courses throughout the evening-school system, but that the time has arrived when it would be in the interest of education to insist even in the case of the youngest students that as a condition of enrolment they should take up a selected course of instruction for two or three nights a week. Responsible teachers of ordinary evening schools have, however, been instructed to use all possible endeavours to persuade students to take such courses, and it is to be understood that success in arranging such courses will be regarded as a testimony to efficient organisation. In the case of the centres, however, the council has agreed that courses covering three nights a week should be made compulsory on all students under eighteen years of age, except where the responsible masters consider that circumstances justify exemption.

### CONTINUATION SCHOOLS IN GERMANY.<sup>1</sup>

THE distinctive feature of the continuation-school system in Germany is the recognition of the principle of compulsory attendance. This is enunciated in the Imperial Labour Law of 1891, which imposes the statutory obligation on all employers of labour to give their employees under eighteen years of age such leave of absence from work for the purposes of attending continuation schools as the local authority may prescribe. It also gives to the local authorities the power to make by-laws requiring compulsory attendance at continuation schools. (See clauses 120, 142, 150.) This law was amended in 1900, when employees under eighteen are defined as male workers,

<sup>3</sup> "Oxford and Working Class Education." (Oxford Clarendon Press, 1908.)

<sup>1</sup> From a "Report on Eight Years of Technical Education and Continuation Schools" presented to the Education Committee of the London County Council. (London: P. S. King and Son.) 2s. 6d.

female clerks, and female apprentices. A decree of 1904, issued by the Minister of Industry and Commerce, enjoins that such compulsory classes should be held during the working-day and not in the evening or on Sundays.

The compulsory continuation system for boys has now been generally, though not universally, adopted throughout the German Empire. A notable exception is Hamburg, where a voluntary system, worked through the guilds, still remains. Each State has been free to adopt and develop its own system of compulsory school, and considerable variety as to hours and other details of organisation exists. In most urban centres the survival of the guild system with its educational tradition has greatly facilitated the development of the continuation schools, and has rendered possible a highly differentiated system of trade courses.

The most striking example of this is offered by Munich, where, under the guidance of Dr. Kerschensteiner, a complete system of compulsory technical schools offers specially arranged courses of instruction for every type of trade pursued in the town by male workers.

The development of the continuation-school system has been mainly in relation to boys. Comparatively little progress has been made with regard to girls.

Out of twenty-seven States which had adopted the compulsory system for boys in the year 1908, five only had included provision for girls in their system, and those only in a lesser degree. It may be noted that girls do not yet find a place in Dr. Kerschensteiner's scheme. Girls leaving the day school from the seventh class are required to attend the so-called "Sonntagschule" on Sundays and Wednesdays. Girls leaving from the eighth class are required to attend for one year only. They may, if they wish, instead join the optional schools in commercial or domestic subjects.

The most notable advance with regard to girls is the decision of the Berlin authority to put the compulsory continuation-school courses for girls on a similar footing to those for boys. The scheme comes into force in April, 1913.

## HISTORY AND CURRENT EVENTS.

"THE people of the United States" of America have once more been changing their Constitution. During the century and a quarter since the Constitution first shaped the country in the form we know so well, there have been three periods of amendment. Twelve amendments were made as the working of the Constitution in sixteen years revealed certain defects; these may be regarded as necessary adjustments of machinery, not of the greatest importance. Three more were made in the years 1865-70 as a result of the great upheaval which is known as the American Civil War. The most important of these was the fifteenth, which admitted to citizenship all inhabitants of the territory irrespective of "race, colour, or previous condition of servitude." And now, after remaining stable for nearly fifty years, a change of the utmost economic importance has been made. Among the prohibitions of Article I., Section 9, Con-

gress is forbidden to "lay any capitation or other direct tax, unless in proportion to the census or enumeration hereinbefore directed to be taken," and the Supreme Court, erected in virtue of Article III., has decided that this prohibition includes any form of what we know in Great-Britain-and-Ireland as an income tax. It is this prohibition which has been removed by what we suppose will be known as the sixteenth amendment.

THE economic importance of this change will be apparent to all students of the incidence of taxation, and in any case is too large a subject for these notes. It will make possible adjustments of the tariff, and increase the proportion of direct to indirect taxation in a way that will affect the interests of all. But we wish now to direct attention to the method of making the change. What should we say if our Chancellor of the Exchequer had to get a two-thirds majority for each item of his annual budget in both Houses of Parliament, and afterwards to secure a two-thirds majority in seventy-eight of the counties before he could impose a new tax? But a similar process has had to be gone through in the American Republic in order to ratify this new form of taxation. Our Brito-Irish legislature is legally almighty, and can do everything, they say, except make a man into a woman. There are no limits to its powers, because it has grown unconsciously from early days. It is, and was not created. All similar institutions have been created, and have only the powers given them by their makers.

A CURIOUS incident in connection with this change in the "American" Constitution illustrates one of the reasons for the difference between our methods and those of our cousins across the Atlantic. The number of States is now forty-eight (beside the four "Territories"), and the assent of thirty-six is therefore necessary. Which State can claim the honour of being the thirty-sixth and thus of completing the ratification? Thirty-five had already assented when, on February 3 last, the legislatures of Delaware and Wyoming met at ten o'clock in the morning, and immediately proceeded to the vote. Which of these two could claim the position? The answer is a geographical one. The United States is so large, that it is compelled to have two or three time standards, as some of our readers may have learnt from one of Mark Twain's later stories. Delaware is in the neighbourhood of the 75th degree west of Greenwich. Wyoming in that of the 105th. While the legislators of Delaware were ratifying the new law, those of Wyoming were comfortably breakfasting, and did not get to business until two hours after their eastern colleagues had completed their task. When Londoners spend their holidays in Cornwall or Wales, they notice that the sun does not set so soon as in London, and if they were awake early enough, they would also remark that it rose later. Why?

WE Brito-Irish who know in our own history only one occasion on which England became a republic and forced Ireland and Scotland to follow her example, or know more of the history of France than of any

other country, and have read therein the story of the violent changes between monarchy of various kinds and republics which occurred in that country between 1792 and 1870, are apt to think that kingship and republicanism are necessarily opposed one to the other, mutually incompatible. For our enlightenment, therefore, it is useful to note that last January King Alfonso of Spain had friendly interviews with the leaders of the Spanish Republican party, seeking to understand their aims and methods, and inaugurating a policy of mutual understanding which may lead to the peaceable adoption of some of the social and other reforms on which the Republicans have set their hearts. Has his Catholic Majesty been learning wisdom from the fate which has overtaken his brother of Portugal? or is "republicanism" in Spain merely a name, not for a change of the form of government, but for such a programme as we here would describe as "advanced radical"?

## ITEMS OF INTEREST.

### GENERAL.

AMONG the proposals referred to in the King's Speech at the opening of Parliament on March 10th is one "for the development of a national system of education." There seems little promise, however, that a serious attempt will be made during the session to deal effectively with the organisation of our educational system; for from Lord Crewe's remarks in the House of Lords it appears that intentions are to precede performance, and that the Government proposes to indicate the general lines of procedure before introducing any actual measure. It cannot be said that educational legislation is hasty or that such subjects as raising the age of compulsory attendance, abolishing the half-time system, establishing compulsory continuation schools, correlating primary and secondary schools, increasing facilities for entrance to universities, improving the status of teachers, and so on, arouse great interest in our legislators. Upon all these subjects, however, sufficient information and experience are available to provide a substantial basis for any educational measure, and it only requires the courage and determination of statesmen to make the use of it which modern needs demand.

THE intentions of the Government with regard to education adumbrated in the King's Speech were explained more fully by the President of the Board of Education in a speech at Sheffield on March 15th. The Government is not pledged to carry an Education Bill this session. The intention is to place certain proposals before the House of Commons and the country so that they may be discussed fully. It is hoped that they will not be treated from a party point of view, and that they may in the next session of Parliament be passed into law with such changes as may be thought generally to be desirable. Mr. Pease regards the denominational difficulty as insoluble. All educationists will desire that the obtrusion of the "religious difficulty," with the possible danger of again thwarting educational advance, may be

obviated. The Government accepts the existing principle that local authorities shall be made responsible in the main for the work of education. The general principle of the Government's scheme is to secure that the best brains of the whole community shall get to the top, and to provide that there shall be a general diffusion of knowledge, so that we shall possess an educated democracy. As to secondary education, Mr. Pease thinks we are entitled to have a survey of the position and condition of private secondary schools not coming at present under the Board of Education. Everything depends on money, and if the warm support of the ratepayer is not obtained the Government will at any rate have his acquiescence. The exceptional boy and girl will under a national system be able to ascend the educational pyramid, and the road must be made smooth and the journey inexpensive. The improvement of our education will, the President maintains, make for the greater happiness and contentment of the people, and the Government asks for the co-operation and support of the teaching profession in the achievement of its great object.

MOST grades of education and almost all points of view were represented by the signatories to the recent memorial to the Prime Minister urging the Government at once to undertake a comprehensive reform of our national education in the spirit of Lord Haldane's Manchester speech on January 10. Large measures of social reform, the memorialists point out, require for their full realisation the compelling power of lofty ideals which only a truly national education can inspire. The serious concern of all schools should be the inculcation of those fundamental moral qualities upon which the welfare of States depends. The petition insists that adequate provision for education in all grades, from the primary school to the university, should be made in every defined area of the population, and that the artificial barriers between grade and grade should be broken down. The need is emphasised for smaller classes, a broader curriculum, and more teachers, better trained and better paid; and the State, it is urged, should assume some firmer guardianship of youth, linking up the family with the school and instruction with wage-earning employment, whilst paying due respect to the rights of parents and the interests of employers.

WHEN the late Lord Goschen was at the Admiralty in 1896, he instituted, after consultation with the heads of the leading public schools, an examination by which naval cadets were obtained from the schools at an age (fifteen to sixteen) later than that at which the majority of cadets entered the *Britannia*. By this means a connection was re-established between the Navy and the public schools, which brought several valuable officers into the service, who would have otherwise chosen other careers. But the connection was again broken in 1903, when Lord Selborne established the present system of entry into the Navy through Osborne. This step was to be regretted from the naval point of view, as it cut off a useful source of supply of officers, but it relieved the schools from the

duty of specially training a number of boys who left too young to obtain the full benefit of school life. In the Admiralty circular, issued recently on the "Direct Entry of Naval Cadets from Public Schools," the First Lord explains why there will be a deficiency of naval officers in the years 1916 and 1920, and proposes "to make good this deficiency by means of the direct entry of a limited number of cadets of about the age of eighteen who have completed their general education in the public schools or elsewhere." The words "or elsewhere" are no doubt intended to forestall possible democratic grumbling. The right candidates will be received from anywhere.

THESE public-school candidates for entry into the Navy will be required to furnish credentials from their headmaster and to undergo the test of a personal interview with a committee, as happens in the case of candidates for Osborne. Those who are successful in passing this test will then be admitted to compete in an examination, which will be identical with that of candidates for Woolwich, with the addition of a paper on elementary engineering, and will be conducted, of course, by the Civil Service Commission. It is probable that a fair number of good officers will thus be added to the fleet, and the public schools will find no difficulty in using their existing Army classes for the preparation of this new class of candidates for the Navy. It is satisfactory that the age of entry is not too young to preclude such boys from obtaining the full advantage of school life and training. We believe that the proposed bond between the Navy and the schools will prove to be of great value to both.

THE Board of Education announces the establishment in England of a new class of assistant men inspectors, who will be appointed to fill vacancies occurring in the old classes of sub-inspectors and junior inspectors. No more sub-inspectors or junior inspectors will be appointed. The salary attached to the new post of assistant-inspector begins at £200 per annum, and rises by annual increments of £15 to £400 per annum. Assistant-inspectors will be established civil servants, and will be eligible for pension, &c., under the Superannuation Acts. Assistant-inspectors will be engaged chiefly in the inspection of elementary schools, but they may, at the discretion of the Board, be employed in any other work, including the inspection of evening schools, for which the Board considers them qualified. It is estimated that there will be about ten vacancies for assistant-inspectors in England during 1913. On this occasion appointments will be confined to men who are between the ages of thirty and forty-five, and have had not less than eight years' experience in teaching in elementary schools, and, *ceteris paribus*, preference will be given to candidates who have had experience as head-teachers. Intending candidates should apply in writing to the Secretary, Board of Education, for forms of application and particulars of the conditions of employment of assistant-inspectors. Candidates are warned that any attempt to enlist support for their applications through members of Parliament or in any way except as indicated in the form of application will disqualify them for appointment.

THE Board of Education has published a list of forty-one holiday courses in modern languages which will be held at different times during the present year, but mostly in the summer months. The inclusion of a course in this list is not to be interpreted as the expression by the Board of any opinion as to its efficiency or otherwise. Eight of the courses are in German-speaking countries, viz., at Berlin, Freiburg in Breisgau, Greifswald, Jena, Marburg, Salzburg, Lübeck, and Kaiserslautern; three in French Switzerland—at Geneva, Lausanne, and Neuchâtel; three in Spain—at Madrid, Burgos, and Santander; one in Italy—at Florence; four in Great Britain—at Edinburgh, Oxford, London, and Ramsgate; and the rest in France—at Besançon, Dijon, Grenoble, Nancy, Boulogne, St. Malo, Bayeux, Granville, Caen, Havre, Honfleur, Lisieux, Paris, Rouen, St. Servan, St. Valéry-sur-Somme, Tours, Trouville, and Versailles. The table published by the Board of Education gives the date of each course, the fees, return fares from London, lowest cost of boarding, principal subjects of instruction, address of local secretary, and other details of importance to intending students. Copies of the list (price 2d., by post 2½d.) can be obtained direct from Messrs. Wyman and Sons, Ltd., Fetter Lane, London, E.C., or through any bookseller.

THE recent report of the Oxford University Appointments Committee states that there are far fewer applicants for posts as schoolmasters than used to be the case. The headmaster of Sherborne School, Mr. Nowill Smith, made this fact the basis of an address last month at New College, Oxford. He said schoolmastering is comparatively an ill-paid profession. Not 30 per cent. of the schoolmasters in the public schools and the more important grammar schools can hope ever to become a headmaster or a housemaster or to attain to a maximum income of £400 a year. It is a suicidal mistake for a man to go into schoolmastering if he hopes to have a financially prosperous career unless he is a person obviously fitted for success and can get an opening in one of the dozen great schools in the country. Three courses are open, he said. One is to be content with the present state of affairs; a second is to increase the amount of income that a man can make in the ordinary ranks of schoolmastering in public schools; and a third is to stir up people to think of the profession as a field of service to which they can offer themselves in spite of the want of material inducements. A schoolmaster, he concluded, with no private means must be full of enthusiasm for teaching, and must count everything else as dross compared with the main purpose of his life. It is possible to sympathise with Mr. Smith's view and yet to suggest that though the schoolmaster should be fired with the pedagogic passion, still the workman is worthy of his hire. If assistant schoolmasters in public schools are underpaid, it would seem that parents are educating their boys there at less than a fair cost price, and that fees should be increased to raise salaries to a reasonable amount. Education is too important a matter to make it an exercise of self-sacrifice on the part of schoolmasters.

THE annual report for 1912 of the Association of Teachers of Domestic Subjects shows the membership, as recorded on December 31st last, was 1,239. Attention is directed in the general report to an important development of the work of the association by the appointment of a standing scientific committee composed partly of members, but with a majority of scientific experts interested in domestic subjects, who have accepted an invitation to join the committee, and are setting to work enthusiastically with two objects in view: (a) the investigation and solution of scientific problems in domestic subjects sent up to them by individual members of the association, and (b) the review and consideration of the pedagogy of domestic subjects in all classes of schools.

THE prizes offered by the council of the Imperial Scout Exhibition, which is to be held in Bingley Hall, Birmingham, on July 2nd, will, so far as possible, help the boys in their future careers. One prize, we understand, carries with it a two years' scholarship at the University of Birmingham; a firm of silversmiths offers a three-years' apprenticeship; with the signalling badge a three-years' course of instruction in wireless telegraphy is to be provided; and a steamship owner is giving a four-year's apprenticeship, £40 pocket money, a cash bonus when the mate's certificate is secured, and a free outfit to the best sea scout. There are nearly 200,000 boy scouts in the British Isles who can enter for these prizes, but only the best of these will compete at Birmingham.

THE spring meeting of the London Branch of the Association of Science Teachers was held on February 11th, at the Burlington School. There was a good attendance of members and visitors, and an interesting paper on "Science for Backward Girls" was read by Miss G. Attwater, of the County Secondary School, Forest Hill, London, S.E. After briefly outlining the ordinary science work of the school, Miss Attwater described in some detail one or two less formal courses, dwelling particularly upon one on "seawater," suggested by Prof. Armstrong, that has been substituted with great success for the usual physics course of the second year. A discussion followed, in which many members took part.

SCHOOLS of domestic economy for girls were established in London by the late Technical Education Board in 1893. Their purpose is "that of training girls—not for domestic service, nor for any special industry, but as home-makers." A memorandum by Miss Cade and Miss Gordon in a recent report of the London County Council says there are now eleven of these schools in the county area. Of these three are conducted in L.C.C. technical institutes, and eight in polytechnics and aided institutes. These schools give one year's course of training in the domestic arts to girls leaving the elementary schools. About 500 scholarships are awarded annually by the council. These give the holders free tuition, materials, and dinner daily, together with £3 a year maintenance grant. The bulk of the pupils in these schools are scholarship holders. The number of fee-paying pupils

is small. Instruction is given in the principles and processes of cookery, laundrywork, home-dressmaking, needlework, and housewifery. An interesting development of the teaching of housewifery has been initiated at the Shoreditch Technical Institute. The new premises of the school contain a flat, in which the girls reside in turn during their school course. A shrinkage has occurred in the demand for places in these schools in certain districts, and this has necessitated the closing of one school during the current year. The course of work done in these schools has been most carefully thought out, and has proved of great practical value to the successive sets of pupils who have passed through them.

THE prospectus of the Day Technical Schools for Boys for Cookery and for Waiters at the Westminster Technical Institute gives an account of an interesting experiment which is being conducted by the Education Committee of the London County Council. The Cookery Technical School was established in 1910 with the object of providing a course of instruction for boys in all branches of cookery and the making of pastry and confectionery. Admission to the school is, in general, restricted to boys between fourteen and sixteen years of age who have passed Standard VI. or its equivalent. The school is equipped with the latest culinary appliances, including a central cooking range, gas-cookers, grillers, steamers, &c., also a modern pastry, confectionery, and ice-making department. The course of instruction covers three years, and includes the professional training of the pupils under skilled chefs-instructors and the improvement of their general education. The subjects of instruction include practical kitchen work, theory of cooking, kitchen accounts, French, English, arithmetic, and physical exercises. Complete menus are arranged and prepared each day, and lunch is served in the restaurant of the School for Waiters to students of the institute. The council does not undertake responsibility for securing employment for boys on the completion of their training, but it is understood that work for all pupils who complete the course successfully will be found by associations interested in the work of the school.

THE School for Waiters was established in 1912, with the object of providing a training for youths who intend to become waiters. Admission is, in general, restricted to youths between fourteen and sixteen years of age, and they must satisfy the principal that they have received an education such as will justify their entering on the course of training. The school is equipped with a dining-room, pantry, and service-room, which contain all the necessary appliances of a high-class restaurant, and these rooms are in practical use each day for the regular service of meals to the students of the institute. The course extends over a period of one year, and a qualified expert gives instruction in all the duties of a high-class waiter. In addition to practical table service and pantry work, the course includes a careful study of foods, menus, bills, and technical French, while the essentials of a good education will be continued in the study of English, including geography and

arithmetic. Attention will be given to physical exercises to secure smartness and good appearance, and to promote general healthy development. The Incorporated Association of Hotels and Restaurants has welcomed the establishment of the school, and it is understood that it will not be difficult for youths, who successfully complete the course of training, to obtain employment at once with some of the best-known hotels and restaurants.

THE latest issue of *Science Progress* contains ten articles on a variety of topics. Two of them are of particular interest: we refer to that on the dangers of socialistic legislation by Dr. C. Walker and that on tuberculosis, by Dr. R. R. Armstrong. Dr. Walker takes as his text the importance of the stringency of selection on the maintenance of the racial standard, and shows the dangers of all the systems of socialism which aim at mitigating this stringency. He particularly refers to the injury to the race which is likely to follow on the recent legislation concerning tuberculosis. Dr. R. R. Armstrong's clear and critical summary of the current views regarding the mechanism of infection in tuberculosis is equally decided in its conclusion. The proposed isolation of persons suffering from the disease, by lessening the general risk of infection, will retard rather than assist the struggle against consumption. Overwork and under-feeding are the surest preparations for the disease. Both articles are worthy of general attention.

#### SCOTTISH.

THE report of the Royal Commission on Civil Service, which has just been issued, makes interesting reading to critics of the policy of the Education Department with regard to higher education in rural schools. After reading Sir John Struthers's evidence on the subject one is inclined to ask: "Is Saul also among the prophets?" Sir John's statement fully bears out the contention of the critics that the present uniform system of administration for urban and rural districts bears hardly and harshly on the children in the latter. Sir John probably would not admit that it is the Departmental policy that is responsible for the present situation, nor need that point be too closely pressed against him. It is a great matter to have it recognised frankly and fully that there is a rural problem which must be solved. Answering a question regarding the opportunities for a clever boy finding his way to a secondary school, Sir John said that while the provision was better than formerly, he could not say it was quite sufficient. What was wanted, he said, was, first, more money, and secondly, a better distribution of it than at present. Speaking on behalf of the Education Department, he told the Commissioners that he was anxious to encourage school boards to provide in each parish a school with teachers capable of giving that preliminary instruction in secondary-school subjects which would enable them to find out the boy of promise, the boy worth sending on. The Association for Securing Higher Instruction in Rural Schools is to be congratulated on securing a notable and powerful recruit.

A SPECIAL meeting of the Glasgow Branch of the Educational Institute was held in the Royal Technical College. There was an exceptionally large attendance, which was representative not only of the city, but of all districts in the west of Scotland. The president of the institute, Mr. Hugh M'Callum, took as the subject of his address, "The Montessori System." He said that Dr. Montessori had not enunciated any great, luminous educational principles. There were already in operation in the best infant schools all the main features of the new evangel—spontaneous activity, development of individuality, cultivation of the love of nature, and the ordinary activities of the well-regulated home, even to the courtesies and forms of the dinner- and tea-table. Sense training, however, was not in our schools as she advocated it, and even where it existed it was not systematised in the thorough manner practised in her schools. Motions were afterwards passed in favour of enlarged school board areas, increased Treasury grants, and improved facilities for higher education in rural districts.

THE spring meeting of the Classical Association was held this year in Mareschal College, Aberdeen. Dr. Heard, headmaster of Fettes College, referring in his presidential address to the decay of Greek studies, said that the study of Latin by itself would be quite another thing if Greek were abandoned. The study of Latin alone had manifold benefits, but these were very different from the advantages to be derived from the conjoint study of things organically related. Each was the complement of the other, and each appeared to full advantage only in the light of the other. Dr. Heard afterwards denounced the present tendency to worship at the altar of modernity to the exclusion of all other divinities. The self-complacency with which the deep thoughts of the classical ages were set aside was simply amazing. This attitude was due to the delusion that what was old must necessarily be antiquated, forgetting altogether that the things of the spirit have other measures than those of time. Mr. J. W. Critchley, Dumfries Academy, then delivered an address on defects in the Scottish examination system. He entered a strong plea for a scheme of prescribed books in connection with all examinations, contending that the present system encouraged inaccurate and slipshod reading. A lively discussion followed, in which Prof. Harrower appeared as the champion of prescribed books, and Prof. Hardie strongly supported the present policy of unseen translations. In view of the strong difference of opinion no finding was come to by the meeting.

THE first report on the medical inspection of school children, prepared by Dr. Leslie Mackenzie, the Education Department's expert on the health conditions of schools and pupils, has just been issued as a Blue-book. The report makes rather depressing reading when considered as a record of existing social conditions, but regarded as the promise and earnest of better days to come, it is indeed an inspiring document. Dr. Mackenzie points out that medical inspection is now an accepted part of educational administration, and

rightly contends that that could not have happened so rapidly had the system not grown out of a demonstrated social need. After detailing the wretched health conditions of the great majority of the pupils, he goes on to show that most of them are remediable. Sympathetic inspection is bringing home to the parents the need for early attention and treatment; it is forcing upwards among all classes the standard of efficiency, and it is turning towards the medical institutions a steady stream of cases that five years ago only the wealthier classes thought it necessary to look after. With the institution, as is necessary and inevitable, of a system of school clinics and ampler treatment, it is certain that the whole quality of the individual life will undergo considerable improvement.

THE spring meeting of the Modern Languages Association was held at Glasgow University. Mr. S. S. Anderson, Glasgow, read a paper on some aspects of the study of English in France. He said that the recent revival in the study of English in France was due partly to the Government recognition of the proper status of this branch of education, and partly to the brilliant work of the professors and teachers of the subject. The aim in English teaching laid down on the regulations of 1902 was the *practical acquisition* of English. In a normal six-years' course interest was to centre in turn on speaking, reading, writing, and literature. In the final examination the candidate had to write an English essay; and at an oral examination to read an unseen passage and answer questions on it in English. The examiners here, as always in France, were those actually engaged in teaching the subject. It is well to remember that the use of the mother-tongue is not forbidden during the English lesson, although the general aim is the use of English as the speech of the class. Little systematic work is done in phonetics by the pupils, but the teachers in every instance are thorough masters of the subject.

#### IRISH.

THE Intermediate Bill referred to last month as introduced in the House of Commons had a very short life, and in the general "massacre of innocents" at the end of the session, it went under. It was probably never meant to be more than a *ballon d'essai*, and if re-introduced in the new session of Parliament, as has been hinted, it will scarcely be in quite the same form. May a hope be expressed that the needs of intermediate education being admittedly so serious, Mr. Birrell's next published proposal may not again call to the mind the words:

"Ostendent terris hunc tantum fata neque ultra  
Esse sinent"?

THE Intermediate Board is proposing to establish a course of commercial education suitable for the needs of pupils leaving school at the age of sixteen years. This would be a course only for junior grade students. Many commercial students, however, especially those preparing for banks remain at school at least a year longer than this limit of age. It is also stated that the Board intends to modify the rule making a second

modern language compulsory upon all students, and is also contemplating a higher primary course suited to boys intended for a practical career.

THE Viceregal Commission on National Education has decided to conduct its meetings in private and to publish from time to time an abstract of the evidence taken. This has not met the views of the executive of the Irish National Teachers' Organisation, which has resolved in the circumstances not to give evidence before it. The Commission considered this resolution, but has not altered its decision. The evidence must sooner or later all appear in an official document, so that the question narrows itself down to a demand for immediate publication every day on the part of the teachers, who are therefore throwing away for a small point of procedure an excellent opportunity of ventilating their grievances.

THE past month has been important for a spirited declaration of Mr. Dillon in opposition to the decision of the general council of the county councils to reject Mr. Birrell's grant of £10,000 a year for scholarships for pupils from the primary to the secondary schools, and so on to any Irish university they may choose. The councils wish to limit the choice of university to those in which Irish is compulsory, thus excluding Trinity College, and their main argument is that they are bound by an agreement made with the Senate of the National University whereby the Senate on the one side agreed to make Irish a compulsory subject at entrance, and the councils on the other side agreed to strike rates in aid of university education. Mr. Dillon criticises this decision adversely, because he thinks the councils are wholly mistaken in their belief that their action was calculated to promote the Gaelic revival, and the spread of the use of the Irish language, and also because the decision is unjust to Protestant ratepayers, and most ungenerous and unjust to Protestant scholars, who would be clearly entitled to go to any Irish university their parents wished to send them to. He also denies the existence of any such agreement as the councils think is binding upon them. The councils ask Mr. Birrell to abandon his scheme, and to give them power by Act of Parliament to provide scholarships in secondary schools for students from primary schools in accordance with a scheme to be drawn up by the councils and approved by the Intermediate Board.

UNDER the auspices of the Central Association of Irish Schoolmistresses, two lectures have been given this spring by Mr. Mainwaring, of Whitgift School, Croydon, on the new teaching of Latin. The first was entitled "Latin in Relation to Education," and the second "Latin Teaching by the Direct Method." The first was presided over by Dr. Corcoran, professor of education in the National University, and the second by Mr. J. Thompson, headmaster of the High School.

THE Department announces a number of summer courses for teachers this summer. Four of these will begin on July 1st, and close on July 25th, viz., those in experimental science and drawing, domestic economy and manual training, office routine and business

methods, and Carrickmacross lace-making, crochet work, embroidery, and sprigging. Three others will begin on August 5th, and close on August 30th, viz., in advanced cookery, housewifery, hygiene, and sick nursing, practical mathematics and mechanics, and rural science. Applications from teachers must be made before April 15th. There will be thirteen courses in experimental science, but this year no course in the first-year syllabus.

#### WELSH.

THE position of Churchmen interested in the University of Wales, in view of the Disendowment Bill, is likely to cause uneasiness. Lord Kenyon, who is the senior Deputy Chancellor of the University of Wales, spoke in the House of Lords of the alienation of Churchmen likely to be caused by the devotion of what have been Church funds to university purposes. Last month one of the professors in one of the constituent colleges spoke in no hesitating manner as to his aversion to the devotion of such funds to the University. And, again, a Churchman in North Wales has urged that if the Bill is carried into effect, Churchmen will not be willing to give any help to the constituent colleges of the University endowed with "the plunder of their own Church." The alternative suggestion is that the funds taken from the Church should be applied to the reduction of the National Debt.

THE celebration of St. David's Day in the schools of Wales was carried out this year with great enthusiasm. The particular details varied, but the following features of the celebration at one of the schools were, with various substitutions, very general, if not universal. Decorations adorned the walls, chiefly consisting of leeks, daffodils, and Welsh dragons. Pupils wore the leek or the daffodil, sometimes of specially large size. Gigantic leeks were also placed in prominent places in the class-rooms, to command general observation. Numerous drawings of these national emblems made by teachers and scholars were placed throughout the school. The story of the Welsh dragon was told, and its traditional history related, with pictorial illustrations, some of the pictures being drawn by the headmaster. Special maps were displayed, drawn in colours, showing the "Wales of the Princes," and various stages of the history. Welsh costumes were worn by some pupils. A Welsh sketch in character costume was presented. Folk-songs were sung. Morris dancing was brought in, and harp-playing was made a special feature.

In other schools, Welsh poetry was recited, and lessons given on the notable men of the county or of the Principality. In one school twelve Welsh national airs were sung in parts, as well as Welsh action songs. In most schools addresses were given by well-known local men; in one case, a speech was delivered to the children by a man who had been a teacher for fifty-five years.

SIR EDWARD ANWYL, in a lecture on early man in Wales, under the auspices of the Scientific Society of the University College of North Wales, Bangor, informed his audience that the very best book on the subject was M. Deschelette's "Prehistoric Gaul."

This and other books did not deal with Wales itself, but the archæology of early Wales could not be dissociated from the archæology of Western Europe. It is necessary that such statements should be emphasised, for many Welsh teachers seem to think it unpatriotic not to proclaim that Wales is peculiar, and its history unique.

IN a report on Montgomeryshire education, published by the Welsh Department of the Board of Education, occurs the following passage: "The old notion is now thoroughly exploded that the retention of Welsh is a hindrance to the mastery of good English, and to progress in education. Rather do we know from those most competent to judge and from tangible results that quite the contrary is true; that its possession, if rightly applied and used, is of decided educational advantage, and tends to increased richness and flexibility of mind." That there are educational advantages possible to the bilinguist, no one doubts, but it should be pointed out that it requires extremely good teachers to secure the best results from bilinguists. Nor must it be forgotten that "the mastery of good English" will be probably best achieved by the teacher who himself speaks really good English. And when a Welshman speaks good English, he usually seeks a post in England. If Wales wants good bilingual teaching the best way to get it would be to pay such salaries as would secure the very best teachers, and certainly not to rely upon the educational advantages of bilingualism *per se*.

THE chairman of the Welsh Insurance Commission (Mr. T. J. Hughes), in distributing prizes at the Cardiff High School for Boys, announced that the Civil Service Commissioners had agreed to hold a special Civil Service Examination for the purpose of filling some of the posts under the Welsh Commission by open competition examinations at Cardiff and Wrexham to fill vacancies for second-class clerkships. The remuneration for these posts would begin with a salary of £100 a year, rising to £350, with possible promotion to posts worth from £500 to £750. The age limit was to be raised from twenty to twenty-five. Welsh will be an optional, not a compulsory subject.

#### THE END OF EDUCATION.

- (1) *Character in the Making*. By Abel J. Jones. 144 pp. (Murray.) 2s. net.
- (2) *High School Ethics*. By J. Howard Moore. 182 pp. (Bell.) 2s. 6d. net.
- (3) *The Rights and Duties of a Citizen*. By Henry Elliot Malden. Eighth edition, revised. 206 pp. (Methuen.) 1s. 6d.
- (4) *Lessons in Citizenship*. By A. J. Waldegrave. 160 pp. (Nelson.) 1s. 6d. net.
- (5) *Our Empire*. By F. J. Gould. 83 pp. (Longmans.) 1s.
- (6) *The Minister and the Boy*. By Allen Hoben. 171 pp. (Cambridge University Press.) 4s. net.
- (7) *Sundays at the Royal Military College*. By M. G. Archibald. xii+308 pp. (Macmillan.) 3s. 6d. net.

THE common burden of these books is that character-building is the supreme end of education. Mr. Abel Jones's volume deals with this topic alone (1).



and is a very thoughtful and convincing statement of the case. One of his most useful chapters touches a phase of the subject seldom handled, yet one most necessary for the teacher to keep in mind, "differences in endowment." The recognition of a child's limitations need discourage neither parent nor teacher; it may help the child's self-confidence without blighting its hopes; it may issue in practical, if modest, achievements, instead of in empty dreams. The author lays down a thesis which he proceeds to prove quite satisfactorily—"The main differences in congenital endowment amongst individuals of the human species lie in differences in the rate and type of their sensibility and response to stimuli, and in their retention of that which is learnt through experience." Hence good habits are formed in face of very varying degrees of difficulty. Having pointed out the dangers of a purely intellectual education, Mr. Jones insists on the pre-eminent importance of training character, and on the fact that the greatest influence at work in a school is not the imparting of abstract morals, but the providing of a living concrete example of what character should be. "The personality of the teacher is of the greatest importance, because the final lesson he teaches—whether he wishes it or not—is himself. The teacher's virtues train his pupils to virtue, his vices lead his pupils to vice. The pupils are apt—perhaps unconsciously—to regard their teacher as an example to be followed."

Mr. Moore, in his "High School Ethics" (2), maintains the same virile note as in his "Ethics and Education." He commends the municipal virtues of punctuality, honesty, industry, perseverance, and self-reliance. His remarks on "the left-over instincts," and his searching inquiry into the ethics of such sports as hunting, will give pause to those who have never before thought of such matters from a moral point of view. His sympathy with every sentient thing, and his fine plea for those dumb sufferers which cannot plead for themselves, touch a very high ethic indeed. The concluding section on birds is alone worth the price of the book. None the less, it is only fair to add that Mr. Moore is so far ahead of his times that not a few will put him down as an extremist.

The re-issue of Mr. Malden's book on citizenship (3) is opportune. The volume is likely to be of special value to masters who teach history, a subject which provides ample opportunities for excursions into civics, for which room cannot be found in the average school curriculum. The author deals lucidly and attractively with such subjects as Parliament, the Crown, law and justice, taxation and rates, education, Poor Law, labour and capital, the Army, the Navy, the Empire. The useful citizen is made, not by cramming the child with learning, but by training its whole intellectual, moral, and physical being. The value of the book is enhanced by a carefully compiled glossary of the terms used.

Mr. Waldegrave's "Lessons in Citizenship" (4) is a less pretentious volume than the foregoing, but it is handy and suggestive. The writer claims that "each of the chapters contains sufficient material for two or three talks of half an hour's duration, but no attempt has been made to cut them up into hard-and-fast lessons." The writer's idea is not so much to impart a number of "governmental facts" as to develop "a vigorous civic spirit and a strong sense of the reality of social interdependence."

Mr. Gould's booklet (5) consists of geographical and historical notes illustrating the duties of citizenship in the British Empire. Separate chapters are devoted to the different colonies and dependencies. There is a chapter on "Women and the Empire," and another

on "The Empire's Influence in Egypt," with a concluding chapter on "An Empire Garland of Verses."

"The Minister and the Boy" (6), though dealing with much the same topics, is a different type of book from any of the foregoing. Its motive is frankly religious, but its method is essentially practical. It is a book for ministers, but also for those teachers who are keen on brigade and scout work. The author approaches the whole subject in a most reverential spirit; he recognises the significance of the boy of to-day. "Boys now at the age of twelve or fifteen will, in a score of years, manage the affairs of the world. All that has been accomplished—the inventions, the wealth, the experience in education and government, the vast industrial and commercial systems, the administration of justice, the concerns of religion—all will pass into their control; and they who, with the help of the girls of to-day, must administer the world's affairs, are, or may be, in our hands now when their ideals are nascent and their whole natures in flux." These, it may be said, are obvious and universally acknowledged facts. They may be. But how many teachers are really aware of them?

Mr. Archibald's volume of sermons (7), preached mostly to cadets at parade services, is so full of sound practical and ethical import as to render it by no means out of place in this series. Its appeal is to the qualities of true manhood—courage, patriotism, enthusiasm, friendship. It is sure to find readers in a public-school library.

## THE OUTSKIRTS OF SCHOOL GEOGRAPHY.

(1) *Historical and Economic Geographies*. Book I., *World Studies*. By Horace Piggott and Robert J. Finch. xxiii+390 pp. Many illustrations. (Dent.) 3s. 6d.

(2) *Physiography for High Schools*. By A. L. Arey, F. L. Bryant, W. W. Clendenin, and W. T. Morrey. vi+450 pp. Many illustrations. (Harrap.) 4s. 6d.

(3) *An Introduction to Physical Geography*. By M. I. Newbigin. xii+336 pp. (Dent.) 3s. 6d.

(4) *The "Educational Journey" Series*. *To the West of England by Canal*. By R. J. Finch. 64 pp. Illustrated. (Dent.) 9d.

(5) *Home University Library*. *Canada*. By A. G. Bradley. 256 pp. (Williams and Norgate.) 1s.

(6) *Map Projections*. By A. R. Hinks. vii+126 pp. Diagrams. (Cambridge University Press.) 5s. net.

(7) *New South Wales*. By A. W. Jose, T. G. Taylor, W. G. Woolnough. Edited by T. W. Edgeworth David. 372 pp+108 illustrations. (Whitcombe and Tombs.) 4s. 6d.

(8) *Physical Geography for South African Schools*. By A. L. Du Toit. xii+250 pp.+66 illustrations and coloured map. (Cambridge University Press.) 4s. 6d. net.

(9) *From Pole to Pole*. By Sven Hedin. xiv+407 pp.+65 illustrations and maps. (Macmillan.) 7s. 6d. net.

(10) *A History of Geographical Discovery in the Seventeenth and Eighteenth Centuries*. By Edward Heawood. xii+475 pp. Well illustrated. (Cambridge University Press.) 12s. 6d. net.

(11) *An Elementary Historical Geography of the British Isles*. By M. S. Elliott. Pp. 172. Illustrated. (Black.) 1s. 6d.

SCHOOL books may be grouped roughly into two classes, those intended for the teacher and those meant for the regular use of the pupil. This grouping leaves an intermediate class of books, useful to the teacher, which may be used by the pupil, provided his curri-

culum covers the comprehensive treatment of the subject-matter of the book. The eleven books specified appear to belong to the two classes which are entirely or predominantly for the benefit of the British teacher, and this is so, since the subject-matter deals almost entirely with details which are outside the range of British school courses in geography at the present time.

The two books (2 and 3) which touch the school course most closely deal with the physical aspect of geography, and can only be pupils' books where there is teaching in physiography such as that tested by the Cambridge Locals authority in a paper separate from the papers on geography.

"World Studies" (1) is intended as an introductory volume "in so far as it discusses the general principles of modern geography." The impression which this book conveys is that of an encyclopædia. Section 1 is astronomical, and deals with the earth as a planet. Section 2 treats of oceanography, earthquakes, volcanoes, and land sculpture. Section 3 is a geological summary, and the next section refers to the life of man on the earth before historic times. Section 5 treats of climatology, and deals mainly with recording instruments and the methods of presentation of climatic facts. Section 6 describes the main vegetation regions and the geography of primitive man. Section 7 deals with the development of man's knowledge of the world and with maps and map-making, and the final section deals with such economic matters as colonisation, means of communication, and town development. This summary of the contents will show that the teacher may find in this book many parts which appeal to his special interests, and much material which may suggest lines of treatment in his geographical lessons. There are also references to books in which the teacher may find the fuller information which so brief a survey as this book contains could not supply. The reader who has an appetite for disjointed facts will enjoy this book, which is surely not intended for pupils of school age.

Physiography (2) deals in four parts with "The Earth as a Planet," "The Air," "The Sea," and "The Land." As is to be expected in an American book, the references to particular points regarding climate changes and typical land forms are mostly American; the illustrations include numerous photographs and two coloured contour maps. The English teacher should place this book on his library shelf as a work of reference respecting the subject-matter of physiography as taught in American high schools.

Miss Newbiggin's book (3) covers much of the same ground from the British point of view. It includes sections on the form and structure of the lands, the agents which model the land, mathematical geography, the atmosphere, the oceans and seas, and human geography. The illustrations are notably distinct, and there is an absence of photographs. The treatment of certain parts of the work by means of type-forms is a happy illustration of the way in which the teacher under modern conditions resorts to the method of "samples," from the study of which he may proceed by analogy to a knowledge of similar areas elsewhere.

Mr. Finch's little book (4) points out "the chief features of interest along and around the Kennet and Avon route between Reading and Bristol." The illustrations are numerous, and alone would make it worth while to the teacher to obtain this account of a useful "educational journey."

The historical outskirts of geography are well illustrated in Mr. Bradley's study of Canada (5). A geographical description of the country is followed by accounts of the conquest of Canada, and of its later

history, and the book concludes with a chapter on the Dominion of to-day.

Mr. Hinks's "Map Projections" (6) should find a place in the reference library. Its use postulates some mathematical knowledge on the reader's part, although this has been reduced to a minimum, both in quantity and in difficulty. The frontispiece comprises a map of the world on the transverse Mollweide's equal-area projection, and shows the British Empire in relatively correct areas with little distortion of shape. The appendix contains many tables of value to the teacher of geography.

"New South Wales" (7) may be regarded as essential to those teachers whose course includes a detailed survey of Australia. The book is definitely physiographic and economic, and contains many portions which are helpful to the British teacher. For example, the treatment of the climate of Australia with regard to the regular procession of high-pressure areas (about one a week) across the continent from west to east, along tracks which vary from north to south with the seasons, not only makes clear the winds and rainfall of south-east Australia, but also suggests the explanation of the winds and rainfall of New Zealand. The effect of the mountains of New South Wales on the rainfall and the seasonal distribution of rain in New South Wales and Victoria are well illustrated.

Mr. Du Toit (8) defines geography as the description of the earth, and divides the subject into two portions—biogeography and physiography—and treats the latter in his book. The author sketches the main principles of physiography, and wherever possible shows their relationship to the surface features of South Africa. The wealth of detail in regard to this area makes the book a valuable work of reference for British teachers.

Roughly, half of Sven Hedin's "Pole to Pole" (9) consists of an account, suited to young people, of journeys undertaken by the author. Anyone who is at all familiar with the larger volumes in which this famous traveller has told the story of his wanderings will scarcely need to be told that the present volume is of extraordinary interest, partly on account of the personality of the author and partly on account of the somewhat out-of-the-way parts of the world about which he writes. The other half of the book maintains the personal note in describing the countries of the world which the author has not visited. There can be little doubt that young people will feel the surpassing charm of this book.

It is well-nigh impossible in small compass to do full justice to Mr. Heawood's story of geographical progress during early modern times (10). Assuredly everyone who is interested in geography should study this work, and many will feel, with us, that they would like such competent guidance through the nineteenth century. This book will find a place in many libraries among the books which are treasured because they can be taken down from the shelf and dipped into at odd moments as a never-failing source of pleasure.

Miss Elliott's little book (11) is intended for those who know some history and some geography, and to whom the humanistic elements involved in the joint study of both departments of knowledge make a definite appeal. The boundary land between the science of geography and the humanism of history has only recently been described in books for schools, and this account of the British Isles is brightly and interestingly written, and will stimulate many readers to a desire to probe more deeply into this fascinating subject. Many teachers who have not thought of such matters will find new ideas and suggestive trains of thought in this book.

## RECENT SCHOOL BOOKS AND APPARATUS.

## Classics.

*Lysiae Orationes.* Recognovit brevique adnotatione critica instruxit Carolus Hude. (Clarendon Press.) Paper, 3s.; cloth, 3s. 6d. Not paged.—Schoolmasters ought to welcome this text of Lysias—handy, well printed, and ample, for it includes all the orations ascribed to Lysias, even the *ἔρωτικός λόγος* from the Symposium (Burnett's text), and the pieces preserved by Dionysius of Halicarnassus. But why is there no index of the speeches or table of contents? We have noted a difficulty in others of these Oxford texts when we were in search of something. Dr. Hude has carefully criticised the text, and he has been able to assign to their true source (C) a number of good readings that are usually set down to various critics. Our readers are more concerned with the matter than with textual criticism; and this, like most of the Bibliotheca (for there are one or two exceptions), is a cautious and reasonable recension. We may pass on then to recommend teachers to use this in preference to any book of selections. They need not read it all, but it is a great thing to place complete texts in the pupil's hands, that he may learn what there is left of this author. It is said that there are many teachers in America who believe that Latin literature contains six books of Virgil, four speeches of Cicero, and four books of the Gallic war, only.

*Plato, Ion.* With Introduction and Notes by J. M. Macgregor. xxiv+46 pp. (Cambridge University Press.) 2s.—The *Ion* is a witty dialogue, and quite easy for a class that has read the *Iliad* or the *Odyssey*. For such pupils it serves well as a *bonne bouche* for a spare hour or two, read rapidly for enjoyment. As usual, it contains a great deal of good sense, even some profundity, masked in ironic playfulness—

"The lunatic, the lover, and the poet  
Are of imagination all compact."

Need we point the moral? But we wish Mr. Macgregor had not taken such a solemn view of his duties as continually to push under our noses the ethic dative, *οὐ* and *μή*, *ὑπὸ* with the genitive, and strings of references. He also seems to think it necessary to mention that this or that is an epic form. If a boy has read no Homer, he has no business to read the *Ion*; if he has, he will know that *ἕμεων* is epic for *ἑμῶν*. The book suffers, like most other schoolbooks, from a narrow view; it ought to be treated as part of a scheme, and it is high time the Cambridge University Press used some organising intelligence, so that its annotated books might be really, not in name only, a series. For those working alone the edition will meet every want.

*A Source Book of Ancient History.* By G. W. and L. S. Botsford. x+594 pp. (New York: The Macmillan Co.) 5s. 6d. net.—There is a good deal to be said for books like Mr. Botsford's universal history in one volume, provided always that they are not used as a substitute for a liberal education. But we do not think that this book is so good. A source-book, by its nature, ought to contain more than the connected narrative that is to be based upon it; this book, then, is too short to be a proper companion to a general history in one volume. The lists of authorities at the ends of the chapters will enable the student to do more, if he will, but we fear he will be contented with what he finds here. Thus we have twenty-two pages on Egypt, about the same on Babylonia, a dozen on Syria, and as many on Medea and

Persia; the rest of the book is on Greece and Rome. The extracts themselves are undoubtedly attractive and instructive, and a great deal may be learned from the book; but it remains pemican. The questions appended to each section are elementary, and we do not see the use of them.

## English.

*The Teaching of English Literature in Secondary Schools.* By R. S. Bate. vi+177 pp. (Bell.) 2s. 6d. net.—Mr. Bate has written an extremely interesting book under a somewhat inexact title, seeing that two-thirds of its pages are devoted to "Literature in the Higher Forms." As the "higher forms" are composed of boys over fifteen it will be seen that the greater part of Mr. Bate's book will scarcely apply to the vast majority of English secondary schools at all, where the numbers of such boys are very small. So while we heartily endorse Mr. Bates's method for the teaching of English literature in the higher forms of schools happy or enlightened enough to follow their own course and not that set by some external body, we are specially concerned in recommending to all teachers of English his first sixty pages. We recommend them no less sincerely because they contain not a few things with which we disagree, but as a trenchant presentation of the claims of English teaching and as an indication of suitable methods to be adopted under our present conditions they are wholly admirable. That Mr. Bate has one or two prejudices only makes him the more interesting, and as his prejudices are all in favour of culture and scholarship they need deter no one from appreciating an excellent piece of work.

*Essay Writing, Rhetoric and Prosody.* By Egerton Smith. 208 pp. (Bombay: Oxford University Press.) 2s. net.—Mr. Smith is the professor of English literature at Dacca College, and his book is intended primarily for students reading for the intermediate examinations of Calcutta and other Indian universities; and this is no doubt why it has a sort of family resemblance to American manuals on rhetoric, seeing that in both countries methods must be employed suitable to those who are composing in a language a trifle less familiar than the mother-tongue. But Mr. Smith proceeds in the main upon very sound and reasonable lines; especially are we pleased with his principles in the matter of structure, where he has abandoned the traditional order and dealt with the disposition of the whole essay and of the paragraphs before treating of sentence structure and the details of style. His section on prosody is thoroughly readable and scientific. Many teachers might do worse than have Mr. Smith's book by them to give system to their lessons in English.

## History.

*A History of the British Nation.* By A. D. Innes. xxxii+984 pp. (Jack.) 3s. 6d. net.—We could wish that Mr. Innes's explanation of the *Confirmatio Cartarum* (p. 131) had been clearer and fuller. He omits the share of the Dutch in the defeat of the Armada, a matter which was fully worked out by Motley many years ago, but which we have looked for in vain in the text-books. We would not have directed attention to the omission but that Mr. Innes asks (p. 350): "What would have happened if the Spaniards had crippled the English fleet without getting crippled themselves?" and gives an answer which ignores the successful blockade of Parma's flat-bottomed boats by the Dutch in the shallow waters where the Spanish ships could not reach. On p. 390 he ignores the share of London in the settlement of

Ulster, and thus leaves unexplained the names of the towns besieged by James II. In his account of the attack on Strafford he does not tell us the reason for the haste with which he was impeached (pp. 423 seq.). He has apparently not read Mr. Glass's monograph on the Barebones Parliament, or he would not have called Barebones Praise-God, or have treated that assembly with such scant courtesy (p. 454). He might have modified his statement on p. 456 that Anglicanism was repressed. There was much connivance, to say nothing of what went on in comparatively inaccessible parts, and the fact that only 2,000 were ejected in 1662 shows there must have been many Episcopalians still in possession. When we have said this, and added that there are one or two misprints, and that the book is uncomfortable to hold, we have nothing else but praise for this new history of the British nation. It is eminently readable, and its impartiality, especially in the critical times of the Tudors and Stuarts, will commend it to all but bigots. The character of Oliver Cromwell is sympathetically yet critically drawn. There is an abundance of pictures, reproductions, many of them, of caricatures, and the necessary explanations are given in the index to them.

*Harald, First of the Vikings.* By C. Young. 244 pp. (Harrap.) 5s. net.—Captain Young is evidently a student of northern sagas, and here he gives a narrative which "is true, so far as reliable research can be depended upon," and which he has "endeavoured to make readable for a modern public." The result is delightful. It would rejoice the heart of any youngster of any age. But what attracted us most were the pictures by Miss Hammond. Only we would like to ask, Is there a verb "to vike," that the boy on p. 204 with accompanying picture should say, "But I want to go a-Viking!"?

*Victoria the Good Queen.* By R. Horsley. 112 pp. (Chambers.) 6d.—We were agreeably disappointed in this little book. Judging from the size and price, we supposed at first glance that it was another piece of pseudo-biography, written for moral edification merely. But we found it more serious than this. The young reader and his parents will find here an excellent sketch of Victoria's life, which, confining itself to the person, and passing lightly over the events of the reign otherwise than as they were connected with her, does not shirk some of the darker lights of the pictures. There are some photographs and other illustrations, but the value of the book by no means depends on these.

#### Mathematics.

*A Treatise on Hydromechanics.* Part ii., Hydrodynamics. By A. S. Ramsey. xiii+360 pp. (Bell.)—This work forms the second part of the well-known treatise on hydromechanics, due originally to Dr. Besant, of which part i. has run into several editions. In bringing out the last edition, Dr. Besant invited Mr. Ramsey's co-operation, and suggested that he should undertake the completion of the work. The result is the book before us, which we have no hesitation in saying will rank for many years to come as the standard introductory text-book on the subject. Mr. Ramsey has not attempted to write an exhaustive treatise. The student who desires to study the application of Lagrange's equations to the motions of bodies in a liquid, the more advanced problems of vortex motion, the theory of the tides and of viscosity, must have recourse to the standard works by Basset, Lamb, and to the classical papers by the great masters of the subject. But within the limits

which the author has prescribed for himself he has done his work so well that it is difficult to see how it could be bettered. Experience as a teacher has shown him where beginners go astray, and he has been very successful in smoothing out difficulties, and in elucidating those subtle and obscure points which are so many pitfalls to the student. No part of the subject presents greater difficulty than the application of conformal representation to problems of discontinuous motion, but a careful study of the worked examples should make the reader able to attack problems of this kind with confidence. The examples solved in the text, indeed, form one of the most useful features of the book, and there are in addition nearly 400 examples taken from university papers.

*Experimental Mensuration.* By H. S. Redgrove. xvii+328 pp. (Heinemann.) 2s. 6d.—This work is described as an elementary text-book of inductive geometry, intended especially for first- and second-year students in technical colleges. The course of work is essentially that which, under the name of experimental geometry, is now generally used as a preliminary to more formal courses, and we have no hesitation in saying that it appears to be excellently arranged and well calculated to give pupils who are more especially interested in the practical applications a good grounding in the elements of plane and solid geometry, including mensuration and simple numerical trigonometry. The learner is led to see the probable truth of the propositions by experiment, and then in the majority of cases the newly acquired knowledge is linked on to that already obtained by deductive reasoning. The exercises are chiefly constructional and numerical, only one or two very easy riders being included. In a somewhat lengthy and combative preface, the author expounds his views on the teaching of geometry, incidentally belabouring Euclid and denouncing "the artificiality and uselessness of formal geometry and other branches of mathematics." It is suggested that it is as foolish to teach geometry from Euclid as to "teach natural history out of Aristotle or Pliny, or chemistry from the works of the alchemists." There is much else of a similar character, which simply serves to show that the author's studies have not yet led him to understand the difference between pure mathematics and applied mathematics.

#### Science and Technology.

(1) *Our Weather.* By J. S. Fowler and W. Marriott. xi+131 pp. (Dent.) 1s. net. (2) *Climate and Weather.* By Prof. H. N. Dickson. 256 pp. (Williams and Norgate.) 1s. net.—The first of these little books is intended to serve as a help in school work on weather study. It describes the construction and use of the commoner meteorological instruments, and gives an elementary account of the effects which varying temperature and pressure have upon atmospheric moisture. The more obvious features of weather maps are explained, and the connection between weather and agriculture is also considered. The book will give just the kind of help the beginner requires. It is well illustrated.

Prof. Dickson's book is of a more strenuously scientific type, being concerned less with local weather than with the broader questions affecting climate in various parts of the world. It is a very welcome contribution to the subject. In the earlier portion of the book, Ferrel's law and its application to the planetary circulation of winds are explained with unusual clearness, and, later, the great climatic regions are considered in turn with sufficient detail to secure the reader's continued interest. The final chapters, on climate and vegetation and climate and man re-

spectively, are specially suggestive and valuable to students of geography.

*Exercises in Nature Study.* 283 pp. (Nisbet.) In three books, 6d. each.—These little books are suitable for children of nine to thirteen years of age, and furnish exercises of increasing difficulty for a three years' course, each year's work being arranged according to seasons. The exercises include observations not only of plants and animals, but also of landscape features, as well as a little sky study. The books make no attempt to teach science; the exercises are quite simple, yet so framed that they cannot fail to help materially in cultivating the power of accurate observation and logical thought. With the instructions for observation, directions are also given for suitable drawing, description, and modelling. Unpretentious as they are, these little books show that the author recognises both the pitfalls and the opportunities in nature-study. We recommend the series to the attention of teachers.

*Achievements of Chemical Science.* By Dr. J. C. Philip. 217 pp. (Macmillan.) 1s. 6d.—Dr. Philip's little book belongs to the series of "Readable Books in Natural Knowledge," the object of which is to supplement the purely class-room and laboratory teaching with a broad descriptive view of scientific thought and progress. This volume will come somewhat as a surprise to the teacher of chemistry; he will be a dull and routine man who cannot glean from it some illuminating notions to pass on to his class—better still if he can persuade the powers that be to supplement the orthodox text-book with it. The boy or girl studying chemistry is too apt to look upon it as a "subject"; undoubtedly this is often due to the fact that the teacher is not an enthusiast and not a researcher. Dr. Philip is both, and he leads the young reader on from wonder to wonder. The chapter on pioneer work, introducing Priestley and Cavendish, is excellent. All through the book the romance of modern industry is dwelt upon. Lavoisier leads to smoky chimneys and coalite, Priestley to Sir William Ramsay and the rare gases of the atmosphere. Particularly interesting is the chapter on raw materials and by-products, in which the author deals with the utilisation of the obnoxious. Slag wool, blast-furnace gases, hydrochloric acid, alkali waste, and coal tar are dealt with in a way which ought to set the reader's wits working at similar problems of to-day. The book is up to date, and deals appropriately with synthetic rubber, catalysis, the ultra-microscope, and liquid air. The illustrations are copious, and to the point; particular mention should be made of the excellent reproduction of the painting of Sir W. H. Perkin.

*Safety in Coal Mines.* By D. Burns. 158 pp. (Blackie.) 2s. 6d. net.—Prof. Burns's book is intended primarily for colliery firemen under the new Mines Act, and whilst fulfilling that function, it has a considerable interest for chemists and teachers of chemistry. The teacher who has grown tired of describing the usual tests for carbon monoxide might well peruse the method of detecting this gas in the mine by means of a mouse or a bird, and he who has wearied of the conventional name of sulphuretted hydrogen might perhaps be tempted to imitate the collier and call it stink-damp. The sections on safety lamps, air measurement, and mine gases are explicit, and call for nothing but praise; at every turn the reader is reminded of his daily work, and the dangers that surround him, dangers, however, that can be minimised and often avoided. The fireman carries the lives of his fellows in his hand, and the import-

ance of replacing tradition by accurate scientific knowledge is only too obvious. Such a course of work as is embraced by this book should prove invaluable.

One or two loose expressions in the chemical introduction should be corrected in a future edition; on p. 13 fire-damp is said to contain four parts of hydrogen combined with one part of carbon; on p. 15 the molecular weight of any gas is given as twice its atomic weight; on p. 25 hydrogen is said to be colourless, tasteless, and odourless "under ordinary circumstances"; on p. 29 the atomic weight of oxygen is printed as 1; on p. 41 air is written as ( $N_2 + O$ ). These, however, are minor points, and scarcely detract from the usefulness of the book.

We have received from Messrs. F. E. Becker and Co. (Hatton Wall, E.C.), a copy of their new catalogue of physical apparatus. This is a remarkably extensive and well-illustrated volume, extending to more than 1,000 pages; there are few pages which do not contain instructive illustrations, all of which are reproduced in excellent style. Though within recent years the production of price-lists has become almost a refined art, this latest example exhibits merits which are quite peculiar to itself. Many pieces of apparatus, some of which are seldom described except in standard text-books, are represented, and accompanied by detailed information as to their use and to the scientific principles upon which they are based. For this reason the volume may often with advantage be referred to by the student. Of the numerous examples of this, reference may be made to the various available forms of hygrometer, miner's lamps, high-tension electric machines, air-pumps, and boring tools for mining. Another special feature is the detailed lists of apparatus for wireless telegraphy, high-frequency currents, lectures on radium, X-ray equipment, hand ice machines, liquefaction of air and of hydrogen, stereo-pyrometry, and of working models for engineering students. In addition to these, the catalogue includes all apparatus which may be required in any branches of physical science, including mining and geology. At the end of each section is added a very complete list of appropriate lantern-slides; in some cases these include shorter series of slides on special subjects, and which are seldom announced in trade lists.

*The Gray-Burnside Motor-Gyrost.* (J. J. Griffin and Sons.) With accessories, £40.—This continuous-current motor-gyrost has for its flywheel the rotor of a high-speed electric motor. The armature consists of malleable cast-iron, and has the form of a Gramme ring, the junctions between the coils being connected to the commutator. Two magnalium discs, perforated for air cooling, support the armature ring centrally from the shaft, and the commutator is mounted on one of the discs. Practically all the mass of the rotating system is thus concentrated in the ring. The space between the discs is occupied by the shaft, field magnet, and brush gear—all stationary. The brushes make contact with phosphor-bronze studs on the magnalium discs. One end of the shaft is hollow to allow the connection from the field magnets and brushes to be brought to the outside, and the outer casing of magnalium is bored with small holes for air circulation. The weight of the gyrost is 8 lb., the diameter 6½ in., the breadth 3¼ in., the current required between 2 and 4 amperes, and the rate of working at full speed is less than 100 watts. With this gyrost and its accessories all the properties and practical applications of the gyrost can be demonstrated, and the gyrostatic action of the paddles and turbines of steamers, of the flywheels of motor-cars, and of the

rotors and propellers of aeroplanes can be illustrated. The gyrostat works smoothly, maintains its speed throughout an experiment, and is not liable to the deterioration with use of the pivots of the ordinary gyroscope.

#### Pedagogy.

*A Montessori Mother.* By Dorothy Canfield Fisher. With an Introduction by Edmond Holmes. xviii+242 pp. (Constable.) 4s. 6d. net.—All parents and teachers responsible for the education of children from three to six years of age should study this volume. We shall be greatly mistaken if they do not find it an inspiration, and if its perusal does not make them modify their procedure profoundly. Mrs. Fisher has been to Rome, and has taken pains to understand the spirit of Dr. Montessori's methods of education. She recognises that in many respects the Montessori system is a scientific restatement of truths propounded already by Rousseau, Pestalozzi, and Froebel; but she admits very gracefully that attempts to apply, in her own household, the Italian lady's principles have convinced her that the rules of the Casa dei Bambini embody also much original pedagogic research. It is good for us to have a modern presentation of fundamental truths, especially when, as in the Montessori scheme, it is illumined with the spirit of science; and when such a piece of work is put before us with the simplicity and charm of Mrs. Fisher's chapters we have real reason to be grateful. We hope the book will secure the wide circulation it deserves.

#### Miscellaneous.

*The Schoolmasters' Yearbook and Directory, 1913.* lxxvi+424+580+170 pp. (Year Book Press.) 12s. 6d. net.

*The Public Schools Year Book, 1913.* Edited by H. F. W. Deane and W. A. Evans. xxxvi+817 pp. (Year Book Press.) 5s. net.

Year by year since its first appearance we have praised "The Schoolmasters' Yearbook" for its excellence and its great utility. Of the present issue it will be enough to say it maintains the high standard of former editions, and is even more complete. This annual publication has come to be regarded as the "Who's Who" in schoolmastering, and we are glad to record our gratitude to the editor for having saved us much useless searching on many occasions.

The second volume continues to be the official book of reference of the Headmasters' Conference. This is the twenty-fourth year of its publication, and the present edition includes new articles on architecture as a profession, on the Mercantile Marine, and on the Boy Scout movement. The volume contains all the information required by parents desirous of sending a boy to a public school, and gives much useful guidance in the choice of a profession. This is the largest and best of the twenty-four issues of this annual book of reference.

We have had occasion before to write in terms of praise of the *Cambridge Manuals of Science and Literature*, and are glad to direct attention to the addition of ten further volumes to the series, which now numbers sixty. The editors continue their successful efforts to maintain the high standard of general excellence and wide interest of the series. Five of the new volumes deal with science and technology: Prof. J. H. Poynting writes on the shape, size, weight, and spin of the earth; Mr. Berry describes the discovery and the properties of the constituents of the atmosphere; Prof. T. B. Wood tells the story of a loaf of bread; Mr. E. L. Attwood gives a brief account of the modern warship; and Dr. A. Wood explains the physical basis of music. The

other five volumes are more strictly manuals of literature: Dr. C. H. W. Johns describes ancient Babylonia; Dr. W. A. Craigie explains the nature and origin of the Icelandic sagas; Mr. F. S. Eden's little book is likely to develop an appreciation of ancient stained and painted glass; Prof. A. Mawer provides a sketch of the Vikings and their ways; and Prof. F. B. Jevons contributes a sympathetic volume on comparative religion. This mere catalogue is enough to show the catholic tastes of the editors, and to demonstrate the suitability of the books for supplementary reading in connection with the study of the subjects included in the curriculum of the secondary school.

### EDUCATIONAL BOOKS PUBLISHED DURING FEBRUARY, 1913.

(Compiled from information provided by the Publishers.)

#### Modern Languages.

Prosper Mérimée, "Lettres d'Espagne." Edited by J. Laffitte. (Blackie's Longer French Texts.) 112 pp. (Blackie.) 8d.

"Roland et Fleur de Mai." Adapté par E. Magee. (Petits Contes pour les Enfants.) 48 pp. (Blackie.) 4d.

"A French Note-Book." By W. E. Weber. viii+112 pp. (Cambridge University Press.) 1s. 4d.

"New Junior French Course." By G. A. Roberts. 280 pp. (Clive.) 2s. 6d.

#### Classics.

"Selections from Ovid, Heroic and Elegiac." Part ii., with or without vocabulary. Edited by A. C. B. Brown. 93 pp. (Clarendon Press.) 1s. 6d.

Virgil, "Georgics." Book II. Introduction, Text, and Notes. By A. Waugh Young. 60 pp. (Clive.) 1s. 6d.

"The Argonautica of Apollonius Rhodius." Edited, with Introduction and Commentary, by George W. Mooney. (Dublin University Press Series.) (Longmans.) 12s. 6d. net.

#### English: Grammar, Composition, Literature.

"A Book of Historical Poetry." 128 pp. (Edward Arnold.) 8d.

"Specimens of Scottish Literature, 1325-1835." With Introduction, Notes, and Glossary. By Dr. W. M. Metcalfe. 228 pp. (Blackie.) 2s. 6d. net.

"The Pronunciation of English in Scotland." By William Grant. xvi+208 pp. (Cambridge University Press.) 3s. 6d. net.

"Burns's Poems Published in 1786." With Introduction and Notes. By M. S. Cleghorn. 312 pp. (Clarendon Press.) 3s. 6d.

Browning, "Saul." (Oxford Plain Texts.) 20 pp. (Clarendon Press.) Paper, 3d.; cloth, 4d.

Thackeray, "English Humourists of the Eighteenth Century." Edited, with Introduction and Notes, by C. B. Wheeler. 336 pp. (Clarendon Press.) 2s. 6d.

"Stories from Mediæval Romance." By Netta Synett. 160 pp. (Clarendon Press.) 2s.

Burke, "Speeches on America." With Introduction. By A. J. F. Collins and Prof. F. J. C. Hearnshaw. 188 pp. (Clive.) 2s. 6d.

"Ivanhoe." Abridged from Sir Walter Scott. By E. P. Prentys. 128 pp. (Harrap.) 6d.

Chain Stories and Playlets—(1) "The Cat that was Lonesome." (2) "The Woman and Her Pig." (3) "The Mouse that Lost her Tail." Edited by L. P.

Chadwick and E. G. Freeman. Each 48 pp. (Harrap.) Each, stiff paper, 3*d.*; limp cloth, 4*d.*

"Dramatic Myths and Legends." Book I., Norse Myths. By A. E. Sims and M. L. Harry. 128 pp. (Harrap.) Limp cloth, 8*d.*

"Daniel." (Century Bible). By Rev. Prof. R. H. Charles. 152 pp. (Jack.) Cloth, 2*s.* 6*d.* net; leather, 3*s.* 6*d.* net.

"The Bible and Higher Criticism." (The People's Books.) By Dr. W. H. Bennett and Dr. W. F. Adeney. 94 pp. (Jack.) 6*d.* net.

"Wordsworth." (The People's Books.) By Rosaline Masson. 94 pp. (Jack.) 6*d.* net.

"Suggestive Lessons in English." Book VII., Pupils. 61 pp. (McDougall.) Paper, 4*d.*; cloth, 5*d.*

"A Short History of English Literature." By George Saintsbury. Part I. 170 pp. Part II. 170 pp. Part III. 174 pp. Part IV. 198 pp. Part V. 162 pp. (Macmillan.) Each 2*s.*

"Soames's Phonetic Method for Learning to Read: The Teacher's Manual." By Laura Soames. Second Edition. Edited by Prof. W. Viëtor. Part I. 116 pp. Part II. 128 pp. (Macmillan.) Each 2*s.* 6*d.*

"Introduction to English, French, and German Phonetics." By Laura Soames. Third Edition. Edited by Prof. W. Viëtor. 302 pp. (Macmillan.) 6*s.* net.

The Children's Story Books—"Old English Tales." 36 pp. 6*d.* "Tales from Norseland." 36 pp. 6*d.* "Old Greek Tales, Old Norse Tales, Three Tales from Andersen." 52 pp. 9*d.* "Scenes in Fairyland and the Last of the Giant-Killers." Canon Atkinson. 66 pp. 1*s.* (Macmillan.)

The Tudor Shakespeare—"Timon of Athens." 164 pp. "Venus and Adonis," "The Rape of Lucrece, &c." 226 pp. (Macmillan.) Each 1*s.* net.

The Children's Classics—Primary, No. 11. "Jack the Giant-Killer." 32 pp. Sewed, 2*d.*; cloth, 3*d.* Intermediate II., No. 42. "The Story of St. George from Spenser's 'Faerie Queene.'" (Adapted.) 80 pp. Sewed, 3½*d.*; cloth, 4½*d.* Senior, No. 53. "The Story of Drake and Raleigh." (Abridged.) J. Corbett and Sir R. Rodd. 96 pp. Sewed, 4*d.*; cloth, 5*d.* (Macmillan.)

"A Book of English Essays (1600-1900)." Selected by S. V. Makower and B. H. Blackwell, with Notes by A. F. Schuster. 573 pp. (Oxford University Press.) 2*s.* 6*d.*

### History.

"A History of the People of the United States." Vol. viii. By McMaster J. Bach. (Appleton.) 10*s.* 6*d.* net.

"Turkey and the Eastern Question." By John Macdonald. 92 pp. "Wellington and Waterloo." By Major G. W. Redway. 92 pp. "Cecil John Rhodes." By Ian D. Colvin. 92 pp. (Jack.) (The People's Books.) Each 6*d.* net.

"A History of Europe." By Prof. Arthur J. Grant. With Maps and Coloured Chart. (Longmans.) 7*s.* 6*d.* net. Also in three parts. Part I., The Classical World. 2*s.* 6*d.* net. Part II., The Middle Ages. 3*s.* net. Part III., Modern Europe. 3*s.* net.

"Lectures on the American Civil War." By J. F. Rhodes. 218 pp. (Macmillan.) 5*s.* net.

"British History: From the Earliest Times to the Present Day, with a History of the Overseas Dominions." By L. Cecil Smith, assisted by R. L. Given and F. W. Bewsher. Period II., to George V., 1912. (Rivington.) 3*s.* 6*d.*

"A Sketch of General Political History from the Earliest Times." By Arthur D. Innes. In two parts. With Maps. (Rivington.) Each part 3*s.*

"A Class Book of English History." With Maps, Plans, Lists of Important Dates, Subjects for Class,

Blackboard Illustrations, Chief Names, Notes and Index. By Arthur Hassall. In two parts. Part I., 449-1603. 2*s.* Part II., 1603-1910. 2*s.* (Rivington.)

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#### The Direct Method of Teaching Classics.

I READ Mr. Burrell's letter with pleasure. At last someone has realised that the direct method is nothing new in principle, but a return to the ways of all the great teachers of the past, which lasted down to the time when books killed it. Probably there is more method now, as there should be, since we have less time; but not more directness, than in the days when Latin was taught for use in daily life.

If Mr. Price "read Homer in the way described," he was using the direct method; but a sentence in his letter suggests that he is speaking of rapid translation. The way described was rapid reading in Greek, with explanations in Greek. It is evident from his letter, however, that he is not far from the kingdom. I hope he will not think that "oral" and "direct" have quite the same meaning.

A good teacher with a bad method may teach better than a bad teacher with a good method; but that is not an argument against making methods as good as they can be made, for a good teacher with a good method will teach best of all. W. H. D. ROUSE.

Perse School House, Cambridge.

In your last issue Mr. Arthur Burrell, in his letter about the direct method of teaching classics, suggests that "it might be worth while to direct your readers to any fugitive literature which exists on the subject." I cannot pretend to give an exhaustive list, but perhaps the following may prove useful:—"The Teaching of Latin at the Perse School, Cambridge," Board of



Education pamphlets, No. 20 (Wymans) 6d.; articles by Dr. Rouse in *The Classical Review*, *passim*, see especially August, 1907, and June, 1908; "Classical Work and Method in the Twentieth Century," by Dr. Rouse (Cambridge, Heffer); the reports of the School for the Reform of Latin Teaching, held at Bangor in 1911 and 1912 (Bell, at 1s. each); "The Teaching of Latin," by W. H. S. Jones (Blackie, 1s.); the introductions to "Perse Latin Plays" (Cambridge, Heffer, 1s.); and articles in *THE SCHOOL WORLD* for November, 1911, May and September, 1912; last, but not least, anyone may occupy one of the visitors' chairs in the class-rooms of the Perse School.

The recent correspondence in these columns upon the oral teaching of Latin suggests that many teachers have not yet realised that the main difference between the old (or shall we rather say "current"?) method and the "direct," does not, in the early stages, consist chiefly, or even largely, in the amount of Latin read. In the top form, it is true, what is most striking on the direct method is the amount of literature which can be read in a given time with ease and enjoyment. The sixth form at the Perse School have, for example, during the last six weeks (six three-quarter hour periods per week) read all four books of Horace's Odes, the Epodes, the Carmen Saeculare, and two or three satires. But in the lower and middle forms especially the difference between the old (or current) and the direct method is a qualitative rather than a quantitative one.

At this stage the lesson by no means consists solely of the amount of Latin read during the period. The boys may read two lines or two pages out of the book, but, whichever they do, they are hearing and speaking Latin for three-quarters of an hour (the length of a period at the Perse School). All the time that they are in the Latin class-room they are practising and extending their knowledge of Latin, whether by reading out of a book or telling the master what the Boy Scouts were doing on the previous half-holiday. Here lies the explanation of why, though they may not read very quickly at an early stage, they can, and do, do so in the higher forms. It is because, on the oral method, from the very earliest stages, they hear and speak, though they may not read, a far greater amount of Latin than is possible on any other method. And there is a second reason. The lessons have been *real* to them.

The old method produced lovers of the classics in spite of itself—boys were compelled to set out on a weary journey through a barren desert of grammar, and many of them never reached the promised land of the literature. But the direct method brings itself into touch with the boy's life from the beginning; in the very earliest stages this is done by conversation about the boy himself, his school-fellows, his breakfast, or what you will—imagine the fun when a boy, wishing to say that he had an egg for breakfast tells his fellows that has eaten an "ovem," and, perceiving from their laughter that he has made a mistake, corrects himself to "oves," only to be greeted with yet louder outbursts of laughter; soon little plays may be acted and even composed by the boys themselves,<sup>1</sup> and whatever they do it must be something which is real and *living* to them. Even their "composition" is made a vivid and exciting episode instead of a dull exercise in mosaic work.<sup>2</sup> Of course, one often fails, and it would be absurd to maintain that every oral lesson is superior to any lesson on the old method.

But individual imperfections cannot justly be brought as charges against the method itself; the principle is good if only for having recognised that a boy's life and imagination must not be stunted by drudgery, but developed by giving him the opportunity of self-expression both in speech and action.

What is meant by the attempt to make Latin a part of the boy's life will be clear from the two following trivial examples. Here in Cambridge last week the Lent races were held, so one afternoon we devoted our Latin period with the third form to learning all about boats and crews. We glanced hurriedly at an ordinary sailing ship with its mast, sails, and yard-arms, and then turned our attention to the particular kind of boat which is used in the races here. What we discovered was roughly as follows: "Hodie nostro in flumine naves cursu contendunt, quo in certamine alia aliam excipere conatur. Hae naves nulla habent vela, sed remiges eas propellunt remis: quaque in nave octo sedent remiges et gubernator unus, qui in puppi sedet et gubernaculo navem gubernat, ne ripam tangat. Saepenumero, cum navis aliam excipit, prora sua gubernaculum alius frangit, et gubernator navis quae excipitur manum suam tollit, ut monstret suam navem esse victam. Fautores interea celerrime per ripam currunt, magnisque clamoribus, tibiis, crepundiis, suos hortantur." A picture, of course, was drawn on the blackboard to illustrate the different words, and also a few other side-issues, not mentioned above, which arose during the course of the lesson.

My second example—more trivial still—is simply that to-day<sup>3</sup> I wished all the boys in the third form a happy new year. (I could not very well give them "strenae.") The mention of so trivial an example will perhaps, better than anything else, indicate what is meant by making Latin something real.

In conclusion I should like to appeal to all who are interested in the reformed teaching of Latin to make a special effort to attend the summer school (to be held this year in Cambridge), about which all information may be obtained from Mr. W. L. Paine, 26 Sydenham Road, Croydon. R. B. APPLETON.

Perse School, Cambridge.

### Breathing Exercises and Intellectual Freshness.

IN 1907 the Prussian Government issued new regulations for schools in respect of physical training. The aim was by an ordered sequence of free exercises to counteract the injurious effects of a sedentary life on the scholars by breathing exercises and extension movements designed to quicken the circulation, the digestion, and to make the pupils hold themselves properly. Every class has some physical training as part of every day's school work; on days for which no regular gymnastic period is fixed on the time-table they have five to ten minutes' drill in these free movements. In all German schools there is a short interval of ten minutes between classes. These additional exercises may not be taken in these intervals, which are intended for free recreation; they are taken either immediately before or after the interval, and wherever possible in the open air.

Mr. Marx Lobsien, of Kiel, has been conducting some interesting experiments in the elementary schools of his city, with the view of ascertaining the value of these short turns of exercise on the intellectual freshness of the scholars. The results of these experiments are published in a brochure of twenty-six pages, entitled, "Das 10 Minuten-Turnen" (Langensalza, Hermann Beyer u. Söhne). The experiments were carried out on a large scale, with 2,924 scholars, boys

<sup>1</sup> See an article on this subject in *THE SCHOOL WORLD* for September, 1912.

<sup>2</sup> *THE SCHOOL WORLD*, November, 1911.

<sup>3</sup> March 1st.

and girls, in all the standards of the elementary schools. The tests were carried out at 11 a.m., so as to hold the balance fairly as between the children who are by temperament freshest in the morning and those who are freshest in the evening. It should be remembered that the assembly hours for German schools are 7 a.m. in summer and 8 a.m. in winter. The form of test adopted as most convenient was a pure memory test. Certain nonsense words were read clearly to the class five times over by the teachers, who co-operated with Mr. Lobsien, and then the children were asked to reproduce on special forms as much as they could remember. Here, for instance, is one set of words used: "Husef, Migol, Kibat, Fesum, Bakun, Tobad, Nochis, Giton, Rakit, Kertof"—such words as never were on land or sea. A set of these words were dictated to each class four times, first, before and after an interval without the ten minutes of special exercises, next, before and after an interval to which the ten minutes' special exercises were superadded. The exercises were mainly exercises in deep breathing.

The results will be best explained in tabular form:

### BOYS.

Standard	With the exercises				Without the exercises			
	Before the interval		After the interval		Before the interval		After the interval	
	Total	Correct	Total	Correct	Total	Correct	Total	Correct
I. (the highest)	1414	837	1579	1100	1420	826	1429	890
II.	1438	781	1641	921	1320	856	1419	774
III.	1245	620	1316	784	1150	628	1226	601
IV.	1158	402	1044	540	1066	477	1201	477
V.	1299	484	1296	553	1273	583	1085	504
VI.	146	31	158	95	156	85	140	98
VII.	41	25	57	37	60	39	47	32
Per head	6731	3186	7099	4033	6385	3494	6547	3576
	5.5	2.6	5.8	3.3	5.2	2.8	5.3	2.9

### GIRLS.

I.	1779	1061	1996	1336	1686	1057	1756	1140
II.	1772	804	1995	1094	1967	948	1921	891
III.	1257	516	1385	666	1453	603	1264	602
IV.	1054	350	1039	442	1126	541	931	471
V.	1004	386	1251	713	1193	585	990	579
VI.	363	114	423	183	462	165	430	145
Per head	7210	3231	8089	4437	7884	3899	7282	3918
	4.6	2.1	5.2	2.9	5.1	2.5	4.7	2.5

The experiments seem to have been conducted with great care and the wide sweep of the numbers evens out most of the disturbing factors which make any experiments on a smaller scale practically worthless. Still, to arrive at real scientific certainty one ought to know something of the subjects in the timetable which preceded the various tests. Only, our psychologists are by no means agreed as yet with regard to the fatigue coefficients of these different subjects of the curriculum.

Taking the results as they stand, the figures show that even a "short turn" of breathing exercises and free extension movements does have quite a markedly exhilarating effect upon the mind; that this effect is

more pronounced in the case of boys than of girls; that, so far as these matters admit of being evaluated with mathematical accuracy, the ten minutes so employed add more than 13 per cent. to the intellectual freshness of the pupil. This is worth getting. The physical results are probably even better than the intellectual.

J. L. PATON.

The Grammar School, Manchester.

### The Strain upon Memory.

MAY I ask the hospitality of the columns of THE SCHOOL WORLD for the purpose of gathering information on the important subject of education, which I have been asked to do by Prof. G. E. Broche, of Lyons University, France, who is engaged on a very extensive inquiry into the strain upon memory, in the schools of France, the United Kingdom of Great Britain and Ireland, Germany, Italy, and Greece.

Prof. Broche wishes to obtain information under the following headings:

(a) In history, geography, mathematics, chemistry, natural history, and natural philosophy: first, the extent (number of lines, pages, &c.) of the texts to be learnt *by heart* in the average week; and secondly, the extent of the texts whose *substance alone* is to be learnt.

(b) In English language and literature, an estimation of the number of words learnt in grammar, poetry, and prose; and, in languages other than English, an estimation of the number of words learnt in grammar, vocabularies, and texts, in the average week.

Teachers throughout the United Kingdom, in both elementary and secondary schools, are invited kindly to send the above information to Prof. Broche, Ecole Supérieure, Avignon (Vaucluse), France, who will, in due time, present a copy of his valuable report to all who have supplied information.

I need scarcely emphasise the wide and varied field of Prof. Broche's inquiry, embracing as it does schools in the above-mentioned countries, or the fact that the results of that inquiry should be of the greatest value to all who are interested in the development of education.

ALEXANDER R. SLADE.

The High School, 40, Harcourt Street, Dublin.

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SIXPENCE.

## THE NAVY AND THE PUBLIC SCHOOLS.

By A. A. SOMERVILLE, M.A.  
Eton College.

THE motto of the Navy is, "There is nothing that the Navy cannot do," but Mr. Winston Churchill, in his Circular on the direct entry of naval cadets from public schools, issued from the Admiralty last February, tells us that, while it takes only two years to build a battleship, it is not possible to make a naval lieutenant in less than nine years from the time at which he enters Osborne as a cadet.

Of those nine years, four, between the ages of 13 and 17, are spent at those interesting educational experiments the naval colleges at Osborne and Dartmouth. In these schools we find a dual system somewhat akin to the organisation of a French *lycée*. Each college is under the command of a captain with a full naval staff under him, who instruct in seamanship, gymnastics and engineering, and upon whom rests the whole discipline of the college outside the "studies" (*i.e.*, class-rooms), while the general literary and scientific training of the cadets is under the control of a headmaster, who has under him a thoroughly competent body of assistant-masters. Here we have a modified reproduction of the *censeur* and *répétiteurs*, together with the *provisieur* and *professeurs* of the *lycée*; discipline and character training are largely divorced from instruction; and it is striking to find that the training of character is almost wholly in the hands of the continually changing naval staff, while the permanent assistant-masters are not allowed, outside the class-rooms, to exercise the highest part of their calling.

Judging from the reports of the officers of the Board of Education who inspected the naval colleges in May, 1912, at the request of the Admiralty, this experiment in education "has achieved even in its first years a very high degree of success."

No doubt the all-pervading influence of obedience to duty and instant readiness for

service taught by the naval officers has a compelling and formative influence upon the imaginations and characters of the cadets, which counterbalances to a great extent the apparent disadvantages of the dual system.

The Admiralty Circular gives several reasons for expecting that the provision of officers for the Fleet will be found to be insufficient in the near future unless steps are now taken to provide additional sources of supply.

The new requirements of the air and submarine services, and the establishment of the Dominion Navies, which for the present must be officered by the mother-country, are mentioned as reasons for an increased demand upon the list of officers of the Royal Navy.

But the chief and arresting reason given for securing an enlarged supply of officers is "increases in foreign navies." Here is a fact which should compel the keen attention of even the least thoughtful. War is a pitiless test of all the weak points in a nation's character and equipment. England is, and has been for some years, engaged in a war, bloodless hitherto, with foreign navies, and the strain is beginning to be felt, not only in money, but in men. Fifteen years ago our yearly naval bill was less than half what it is to-day, our naval supremacy was unchallenged, and the supply of boys for the Navy seemed unlimited. What of to-morrow?

We think with growing regret of the millions spent on armaments which might be spent on social and educational reform, and the development of our Crown Colonies, but we must pay the toll which our existence as an empire demands, and we must pay it in full, or we may pay it in vain. On the water, under the water, and now above the water, we must be supreme if we are to live. The British Empire cannot exist on sufferance. The bright spot in our outlook is the appearance of the Dominions upon the international horizon. If the motherland can hold the gates of Empire until the organised strength of her children comes to her aid, the future of our race should be secure.

In its difficulty the Admiralty turns to the public schools—those institutions which are not fit to live, in the opinion of many well-informed critics in the daily Press. Perhaps the reason why they continue to live and even presume to thrive is that they are the best guardians of the spirit of fair play, the sense of honour, and the readiness to make the best of things as they come which are essential characteristics of Englishmen. They have always tried to teach standards by which the facts of life may be judged, and they are becoming more successful in teaching a knowledge of those facts. The headmaster of Repton, to judge from a recent address to teachers, appears to doubt the possibility of combining these two aims, but it seems to the writer that some degree of success in this endeavour has been already attained. The schools are alive with the spirit of Voltaire's saying: "On étudie les livres en attendant qu'on étudie les hommes." The proof of this assertion may be found in the success of the public-school men who direct our affairs in the Civil Service, in our reformed Army, in India, in the Sudan; their schools have trained them for a successful study of their fellow-men. In business, too, they hold their own, as the City would testify. An interesting fact in this connection is the formation of a public schools club amongst the officials of one of our chief railways.

The Admiralty invitation to the schools is a return to the policy of 1896, when Lord Goschen, then First Lord of the Admiralty, instituted a scheme by which naval cadets of fifteen to sixteen years of age were obtained from the schools to supplement the main supply from the *Britannia*. By this scheme the Navy obtained a good many able officers who would otherwise have been lost to the service, but the prescribed age of entry prevented the cadets obtained in this way from receiving the full benefit of school life.

The Goschen supplementary scheme was abolished by Lord Selborne in 1903, when he established the Osborne-Dartmouth system as the sole means of obtaining entrance as an officer into the Navy, with the object of having a common entry and training for executive and engineer officers.

The present scheme proposes "the direct entry of a limited number of cadets of about the age of eighteen who have completed their general education in the public schools or elsewhere." The words "or elsewhere" guard the proposal against any suspicion of undue favour to the schools, and the schools have no reason to fear open competition, if we are to judge from the analogy of direct entry into Woolwich; we find that the large majority of

Woolwich cadets come direct from the public schools.

The scheme further provides that candidates are to appear before a Committee, as in the case of candidates for admission to Osborne, which will interview them and examine the credentials which they bring from the headmasters of their schools. Such credentials are already familiar to the schools in the case of those cadets who are now admitted to Sandhurst by nomination, followed by an interview with a War Office Committee. It is to be hoped that all such testimonials will be standardised so far as possible, and here a "school record" of candidates, if kept by schools on an agreed plan, might be of great use. A continuous record kept through a boy's school career by a series of masters should furnish a trustworthy basis for the final testimonial from the headmaster.

Mr. Churchill's Circular followed soon after the highly interesting report of the Committee, which had Admiral Custance as chairman, and included Mr. W. C. Fletcher, H.M. Chief Inspector of Secondary Schools, appointed by the Admiralty to inquire into the education and training of cadets, midshipmen and junior officers of his Majesty's Fleet. The report reveals a source of weakness in the supply of cadets obtained on the present system. It states that the evidence given before the Committee has been much in favour of the system of entry embodied in the interview Committee and the qualifying examination. But it adds that "some boys of somewhat low ability" have to be entered in order to obtain a sufficient supply of cadets, and it also mentions that the number of boys "weeded out" from Osborne as unfit for a naval career has fallen from 10 per cent. to 3 or 4 per cent., so that some cadets unfit to be officers are passing into the Navy.

No doubt this information caused the Admiralty to consider means of increasing the number of suitable candidates, and had some effect in producing the February Circular. It seems probable that the desired result will now be obtained.

Candidates who survive the ordeal of the interview Committee under the new supplementary system will be admitted to a competitive examination, conducted by the Civil Service Commissioners, which will be identical in all respects with the present examination for entrance into Woolwich, with the addition of an optional paper on the theory of elementary engineering.

The proposed conditions of age and examination are thus favourable to a cordial response from the schools to the invitation of the Admiralty. The age limits (17½ to 18½)

laid down will allow intending candidates to obtain lasting benefit from their time at school, and they can be thoroughly prepared for the prescribed entrance examination in the Army classes of the schools. These classes are necessarily, so far as they go, the most businesslike and thorough parts of the organisation of the schools, for each member of an Army class has before him an object which he must attain within a definite time. Here someone will probably remark: "It is admitted, then, that at an English public school boys will not work unless there is a definite immediate object in front of them; they will not work for the love of knowledge like French or German boys." No; this is not admitted. The love of knowledge and work for the sake of it alone are to be found in English schools to a greater extent than is believed. It is often forgotten that there is no professional career open to a French or German boy if he does not pass the leaving certificate examination before he leaves school, and that success exempts him from part of his compulsory service in the army. These are powerful and pressing incentives to work in the schools of our neighbours, of which we must take account in comparing the standards of keenness and efficiency in our schools with theirs.

The new scheme may cause some anxiety to the War Office; there is a little risk that it may rob Mars to pay Neptune. We know that the Army has been suffering from a scarcity of candidates, and that the Army Council has just put into force a new set of regulations with the view of inducing a larger number of candidates to enter for Sandhurst. But Woolwich has hitherto, except during the trying Boer War time, attracted a sufficient number of able cadets, and the supply will probably be very slightly affected by naval competition. In any case, Britannia must rule the waves at all costs, and it will be the duty and privilege of the schools to do something towards keeping the trident in her hand. It may happen that some of the future achievements of the Navy will be attributed to the training of the river at Eton, and that "the Rodney yet to be" will come, like the great original, from Harrow. Or again, the Chapel at Clifton may be revisited in years to come by her naval sons, where—

They too may speak with noble ghosts,  
Of manhood and the vows of war  
They made before the Lord of Hosts.

The Fleet should receive some useful officers from the schools, and the schools cannot fail to gain from more direct contact with that noblest and most inspiring service, the British Navy.

## GERMAN REFORM SCHOOLS.

By MARK P. MAYO, B.A.

TO explain the rise and development of "Reform" schools in Germany, it is necessary first to make clear the nature of the work done in the three main types of secondary schools: the *Gymnasium* or classical school, the *Realgymnasium* or semi-classical school, and the *Oberrealschule* or modern school. Each of these provides a course of instruction extending over nine years from the lowest form, *Sexta*, which boys enter at the age of nine to ten, through *Quinta*, *Quarta*, *Untertertia*, *Obertertia*, *Untersekunda*, *Obersekunda* and *Unterprima*, to the highest form, *Oberprima*, the members of which will average about nineteen years of age, or a little more, towards the close of the school year. This nine years' course leads up to the examination for the higher leaving certificate (*Reifezeugnis*), which it is necessary to pass in order to become a matriculated student of any German university. Only those who hold the *Reifezeugnis* can enter the learned professions or the higher branches of the public service. There is also a lower certificate granted at the end of the sixth year to all who qualify for promotion from *Untersekunda* to *Obersekunda*. Holders of this have the right of volunteering for one year's service in the army instead of becoming conscripts for the full period of two years. In this connection it may be mentioned that there are a considerable number of secondary schools which provide only a six years' course, identical with that of the first six years in the three main types of school, and leading up to the examination for the lower leaving certificate just referred to. These schools are called respectively *Progymnasien*, *Prorealgymnasien* and *Realschulen*. *Realschulen* are particularly numerous. The "one-year volunteer certificate" also opens the door to intermediate clerical appointments in the Civil Service and is a passport to employment in the better-class business houses.

The subjects common to all three types of school are religion, German, French, history, geography, arithmetic, mathematics, natural science, drawing, gymnastics. The distinguishing feature of the *Gymnasium* is the study of Latin and Greek. In the *Realgymnasium* Greek gives place to English, less time is devoted to Latin and more time to science, mathematics and French. In the *Oberrealschule* no dead language is taught, the time thus saved being apportioned between German, French, English, science and mathematics.

Now I stated above that the leaving certifi-

cate (*Reifezeugnis*) is a necessary qualification for entrance upon a professional or higher Civil Service career. But there are many restrictions. For instance, the medical and legal professions are closed to those knowing no Latin. The Church is open only to the holders of the *Reifezeugnis* of a classical Gymnasium. For the scientific professions and many of the best business houses an Oberrealschul education affords the readiest opening. In fact, there are for many careers various requirements which limit considerably the field of choice for pupils from each type of school.

This creates a great and sometimes insuperable difficulty for the parent. He must more or less decide on his son's future career when he first sends him to school, for it is difficult to make a change later on, and very often, for reasons to be shown, transference to another type of school is quite out of the question. Also, apart from practical considerations as to the boy's career in after-life, many parents prefer to watch the development of a boy's talents before deciding which type of education he shall receive. It frequently happens in a municipality or district possessing only, say, a Gymnasium, that a large number of the inhabitants desire a Realgymnasial training for their sons. With the curriculum of the former, boys receive the same instruction during the first three years (*Sexta*, *Quinta*, *Quarta*) as in a Realgymnasium, but in the fourth year (*Untertertia*) of the Gymnasium Greek begins and no English is taught. At that stage, therefore, parents who wish their boys to learn both English and French and no Greek are obliged to transfer them to a school, probably in some other place at a considerable distance from home, where from the fourth year English is taught in place of Greek, if, indeed, they have not already entered them in such a school from the very beginning. At the same time, not a few of the parents may be anxiously considering the question of giving their sons an Oberrealschul education (neither Latin nor Greek). Others, again, are either unable or unwilling to decide, while their boys are still quite young, on the exact type of education they shall receive. There are always many who would gladly defer such a decision as long as possible.

To anyone unacquainted with the reforms introduced into the organisation of an ever-increasing number of German secondary schools, such a diversity of requirements would seem to present almost insuperable difficulties. As a matter of fact, the solution is an easy one.

In 1878, Schlee of Altona attempted to solve the problem to some extent by the

creation of what is known as the Altona system of Reform-Realgymnasien. French takes the place of Latin as the first foreign language, the latter being postponed to *Untertertia*. English begins in *Quarta* in order to avoid the simultaneous introduction of two new languages in the next form. Under this system, therefore, Realgymnasium and Real-schule are easily made to have a common basis of instruction for the first three years, and the two "sides" form one school in the same building.

Far more important and more widely introduced is the Frankfurt system of Reform schools created by Reinhardt in 1892. He made provision for a common basis of instruction in all three types of school, and this is the system almost universally adopted. In fact, out of some 130 Reform schools now in existence or in process of formation, only four or five follow the Altona system; the rest are all organised on the Frankfurt model.

From the accompanying tables<sup>1</sup> it can be seen that under the old *régime* (A, B, C in table) a boy could indeed pass from the Gymnasium to the Realgymnasium, or *vice-versâ*, up to the end of the third year, but that any transfer from or to the (Ober)Real-schule was obviously impracticable from the outset. With the advent of the Frankfurt system of Reform schools, where French again takes the place of Latin as the first foreign language, the substructure of all three types of school (C, D, E) was made the same so far as *Quarta* inclusive. Also, by the postponement of Greek (in D) and English (in E) to *Untersekunda*, an interchange between Gymnasium and Realgymnasium was rendered possible up to the end of the fifth year of the school course.

This was a great boon to those parents who wished to delay coming to a decision which at once narrows the field of choice for their son's future career. Also many educationists see a great advantage in the substitution of French for Latin as the first foreign language taught. Others, again, view with pleasure the postponement of specialisation and the introduction of new languages at longer intervals. They consider intensive study at a maturer age more valuable and educationally sounder than prolonged efforts begun when the mind of the boy is less developed. To them, Greek thirty-two hours a week (in all classes), Latin fifty-one, in the Reform Gymnasium mean at least as much as Greek thirty-six, Latin sixty-eight, in the old type of school. Moreover, the inten-

<sup>1</sup> It is only the distribution of the language teaching that makes any essential difference in the lower forms. The other subjects are common to all three types of school.

sive study of French during the first three years of D and E will be of considerable help as a preparation for the learning of Latin.

	VI.	V.	IV.	U III.	O III.	U II.	O II.	U I.	O I.	Total number of periods weekly in all classes
<b>A. Gymnasium—</b>										
Latin ... ..	8	8	8	8	8	7	7	7	7	68
French ... ..	—	—	4	2	2	3	3	3	3	20
English ... ..	—	—	—	—	—	—	—	—	—	—
Greek ... ..	—	—	—	6	6	6	6	6	6	36
<b>B. Realgymnasium—</b>										
Latin ... ..	8	8	7	5	5	4	4	4	4	49
French ... ..	—	—	5	4	4	4	4	4	4	29
English ... ..	—	—	—	3	3	3	3	3	3	18
Greek ... ..	—	—	—	—	—	—	—	—	—	—
<b>C. [Ober]realschule</b>										
Latin ... ..	—	—	—	—	—	—	—	—	—	—
French ... ..	6	6	6	6	6	5	4	4	4	47
English ... ..	—	—	—	5	4	4	4	4	4	25
Greek ... ..	—	—	—	—	—	—	—	—	—	—
<b>D. Reform-Gymnasium—</b>										
Latin ... ..	—	—	10	10	8	8	8	7	7	51
French ... ..	6	6	6	3	2	2	2	2	2	31
English ... ..	—	—	—	—	—	—	—	—	—	—
Greek ... ..	—	—	—	—	8	8	8	8	8	32
<b>E. Reform-Realgymnasium.</b>										
Latin ... ..	—	—	8	8	6	6	6	6	6	40
French ... ..	6	6	6	4	4	3	3	3	3	38
English ... ..	—	—	—	—	6	4	4	4	4	18
Greek ... ..	—	—	—	—	—	—	—	—	—	—

favouring the Gymnasium to the detriment of other types of school tends to disappear. Especially remarkable is this when Realschule and Reform-Gymnasium are combined in the same building, for they represent the two extremes of the social scale so far as secondary education is concerned. By far the most frequent combination, however, is that of Realschule with Reform-Realgymnasium. Possibly in time we shall witness the creation of schools embracing all three curricula, classical, semi-classical and modern, under one roof. When that is done the last of the difficulties referred to in the first part of this article will have been removed, and the democratic movement in German education will have advanced another stage.

	VI.	V.	IV.	U III.	O III.	U II.	O II.	U I.	O I.	Total number of periods weekly in all classes
<b>F. Combined Reform-Gymnasium and Reform-Realgymnasium</b>										
<b>Latin—</b>										
Gymnasium ... ..	—	—	—	9	9	8	8	8	8	50
Realgymnasium ... ..	—	—	—	—	—	5	5	5	5	38
<b>French—</b>										
Gymnasium ... ..	6	6	6	4	4	2	2	2	2	34
Realgymnasium ... ..	—	—	—	—	—	3	3	3	3	38
<b>English—</b>										
Gymnasium ... ..	—	—	—	—	—	—	—	—	—	—
Realgymnasium ... ..	—	—	—	—	—	6	4	4	4	18
<b>Greek—</b>										
Gymnasium ... ..	—	—	—	—	—	8	8	8	8	32
Realgymnasium ... ..	—	—	—	—	—	—	—	—	—	—

I am loth to conclude without directing attention, if, indeed, that is necessary, to the advantages of the uniformity so manifest at every turn in the German school system. How often does it happen in England that a boy can be profitably transferred from one school to another with anything approaching the simplicity possible under the system set forth above?

*The Pageant of English Prose.* Edited by R. M. Leonard. 743 pp. (Frowde.) 1s. 6d. and 2s.— There has been nothing good and cheap of late in this direction, and indeed Craik's great book is still *facile princeps*. But such a book as Mr. Leonard's was wanted by the general reader, to whom we suppose it is dedicated. We have nothing from early English, though there is plenty to choose from, and there is scarcely enough from the stately religious prose which is so thoroughly British. Not all great extracts are here, and one may wonder at omissions. But the book is very good, very cheap, and very welcome. The editor's preface is not a masterpiece of English prose; in more than one passage the meaning is not quite clear. There is some delightful criticism in the notes.

The force of these arguments having been widely admitted, not only have the vast majority of the Realgymnasien founded during the last twelve years been organised on the Frankfurt Reform system, but also some twenty-five to thirty Realgymnasien of the old type have adopted the new curriculum. In fact, it seems probable that in the not very distant future the old Realgymnasium will have practically ceased to exist. The classical Gymnasium, supported by class prejudice and long tradition, stands on firmer ground, but already a considerable number of Reform-Gymnasien have been established. The tendency, too, is to unite two types of school in the same building: C and D, or D and E, or C and E. This carries with it the great advantage of reducing considerably the number of cases in which a boy has to be transferred to another school. For instance, in the combined Reform-Gymnasium and Reform-Realgymnasium (see F in table) the groundwork is exactly the same for the first five years. From the sixth year the boy can specialise in Classics or choose the compromise of Latin and Modern Languages together with a more advanced course in science and mathematics. His education continues under the same roof from start to finish, and the old class-prejudice

## THE KINEMATOGRAPH AS AN AID IN EDUCATION.<sup>1</sup>

THE last quarter of the nineteenth century and the early years of the twentieth have seen a veritable revolution in educational methods. We have escaped from the domination of the spoken and written word. To sift out the material, to eliminate the unworthy, and to detect and develop the noble souls who alone could understand the traditions of the elders, were the ideals of fifty years ago. For the rest, "This people that knoweth not the law is accursed." Words were the food of the soul, and only he who could receive and give in this medium might be suspected of possessing any soul at all. Numbers and the broad field of nature were for the helots of our intellectual order. God was to be thanked by the philosopher to whom was denied the low cunning necessary to solve a quadratic equation. Neither mathematics, modern languages, nor history found place in the school curriculum. The story is a trivial one, but not without an eloquent meaning, of the distinguished headmaster who with some misgivings departed from time-honoured custom, and appointed a mathematical master on his staff. "Shall I wear a cap and gown?" asked the victim. "That is as you please," was the reply. Still further tedious, the poor wretch asked, "Will the boys touch their caps to me?" "That is as they please," answered the great man, frowning from his Olympian height. To the men of fifty years ago the headmaster's answers would seem as obvious as the presumption of the claim for recognition and equality implied by the questions.

Yet those days saw great educators, amongst whom stand out the names of Arnold and Thring. Arnold changed the relationship between master and boy, and turned the attention to modern history and thought; whilst Thring was the apostle of the eternal realities, and the prophet of the right of the middle and lower forms and of the average boy to a share in the best a school can afford. But the men of that age were as a rule men of one method, one instrument, almost one panacea for all boys. We live, we believe, in happier times; we have come to recognise that the overmastering necessity in education is that no pupil should pass through school without discovering that he has possibilities of effectiveness in some direction—it matters little what the direction may be. The way to successful achievement is as rough and as arduous

<sup>1</sup> A paper read by F. W. Sanderson, M.A., Headmaster of Oundle School, at the Kinematograph Exhibition Conference on March 28th. Mr. Sanderson writes: "I should not have had the temerity to read this paper on the use of the kinematograph in schools if I had not been encouraged to do so by my friend and colleague Mr. Hale, who promised to write the paper for me. This he has done, and I hope that in the reading of the paper I do not mar what he wished to say."—E.S.

as ever, but the road is no longer white with the skeletons of those who have perished through learning falsely that there is no salvation except by one narrow path which it was not in them to tread. They have now the chance of being judged by what they can do best, and not by the worst they do. This is not to say that the old way does not lead to the delectable mountains. Assuredly it does. But there are many others as safe and sure, each with its own methods and instruments—no one of which can we afford to neglect. Perhaps the educational work of this part of our century is to open up more routes to the one goal, and for this purpose to bring in to the service of education in schools as much as possible of the results of the gigantic development which has taken place within the last fifty years, and so to bring modern invention and discovery into the service of the schools.

We are met to study the kinematograph as the most recent of the instruments now happily at our disposal. First I would wish to urge that if the kinematograph were a means of distributing information only, it would still have a value. But we believe that often it may be more than this. It increases the power of visualising. Everyone finds limitations to his powers of conception. There is, it seems, a limiting point to which each one can go. This is very noticeable in the study of a subject like mathematics. Men go on each to his sticking point. There is a limiting point for each individual at which mental assimilation ceases. It is probably due in a large degree to the lack of power of visualisation. The man of genius can probe into the difficulties of the unknown by his great power of visualisation, and it is fair to claim that any method which aids in visualising is of the essence of education. If this is true for secondary-school children, it is doubly so for children in elementary schools, where the power of visualisation and imagination are probably not so fully developed. The kinematograph may be claimed as the powerful aid to mental vision, both as regards scope and accuracy. It has been urged, no doubt, that by such and by kindred means we make the mental operation too easy—that the child should learn to visualise from the humble text unadorned by too many diagrams, pictures, coloured photographs, and the like. But this is only the old heresy of "culture for the elect" under a new form.

To the average child the text unillustrated is often entirely without meaning, and even an able imagination must be taught to visualise correctly if the mental operation is to be of any value.



## VALUE OF PHOTOGRAPHS.

There is much to be learnt from ordinary photographs and slides of great paintings, buildings, and natural objects. The photograph has a curious power. We may judge of this by the effect of having continually before us such photographs as those of the Elgin marbles. The reason would appear to be this. The eye of the camera is penetrating and steady. The still photographs present *one* aspect of the object under study; we can return to them again and again, and we can take each detail in turn. A presentation is fixed, stereotyped, as it were, and can be studied at leisure. The object or scene can be placed under comparison from several permanent points of view. For such reasons Ruskin<sup>2</sup> has said that a good reproduction is better than the picture or statue itself. And indeed, with objects of nature, it is common knowledge that the photographic plate often reveals more than the eye, even aided with the telescope, can see. But the ordinary photograph has natural limitations. What it does not do is this—it does not give the effect of continuously changing the point of view—as in a journey up a river; it does not show life, nor does it give the effect of change and growth. For this we may compare still pictures of scenery with the kinematograph view taken from a steamer in, say, an estuary, dock, or passing up a river. Or we may take a strip of film and inspect the static pictures, and compare the revelation of the film when passed through the lantern.

Again, let us consider the growth of a plant. In the mind of a child it may be doubted whether for some time the idea of plant growth has any meaning at all, or, if so, the conception belongs to the same mental region as fairy-land, talking bears, and pumpkin coaches—things to be believed and rejoiced in, but with no association with real life. Growth goes on generally so slowly as to escape notice. The kinematograph will condense the growth of weeks into a few minutes, and the plant as a living, growing organism becomes a real conception. We may consider this further. There can be no way of introducing the study of biology more thorough or more productive of enthusiasm than that of following out life-histories critically and in detail. Let each boy of a class describe in writing, and with the aid of his accurate diagrams, each step in the life-history of a plant. The seed gives the seedling, the seedling slowly but surely evolves into the mature plant, gradually producing

root and shoot. The flowers appear, and in the course of time the seed from them. A few well-known typical plants will provide all necessary material. If the kinematograph also be brought into use at each stage, photographs can be taken daily of the same plant, and the class will possess an unfailling and complete review of all the phases in the plant's life. And, further, the series of static pictures which will thus be obtained will, when passed as a film through the lantern, reveal the process of actual growth. The one important thing in the life history of the plant is missing from the static pictures, *i.e.*, the growth from one state to the other. The separate stages have been noted, but the change from one to another can only be shown by the kinematograph; and for this obvious reason the instrument will be especially valuable in the study of biology and natural history.

Here it may be urged that, desirable though it is that every school should have its own kinematograph machine, the equipment is not complete unless a camera is added for the manufacture of home-made films. Reproductions of the more vivid scientific experiments, of gymnastics, scientific football and rowing, of the operations of the cadet corps, of the school aviary and aquarium, of the movement of small, living organisms under the microscope, all have educational value. They stimulate thought, and are an aid to discussion, to explanation, and therefore to perception.

## GENERAL KNOWLEDGE.

The kinematograph is a valuable aid in spreading general information to all sides of a school. In an ideal school many individuals are pursuing widely different lines of study. All cannot look down the same microscope, but the outlook of all can be broadened by contact with trains of ideas beyond the purview of their daily routine. Let boys and girls whose aptitude is for literature and mathematics follow the road indicated by their individual faculties; but there is no reason why the facts of physical science, the life history of *amœba*, the circulation of the blood, the effects of bacterial life upon the course of nature, the existence and operation of pernicious trypanosomes, and countless other facts which influence the history of mankind, should not be added to their stock of conceptions. Let them try their minds from time to time in strange environments, and since time in school is short and knowledge ever growing wider, there must be for them some short cuts, some royal roads which may well be furnished by the use of the many valuable kinematograph films which are at our disposal to-day.

<sup>2</sup> "I learned more from the Arundel copy than in the chapel itself; for the daily companionship with the engraving taught me subtleties in the composition which had escaped me in the multitudinous interest of visits to the actual fresco.

## GEOGRAPHY.

The kinematograph is very helpful to the study of geography. In pursuing this subject one method transcends all others. It is to visit foreign countries, and study their physiography and human interests at first hand. The method is not so inaccessible as it seems, and much can be done to create the geographical attitude without going very far from home. A few selected parts of the United Kingdom, or of the nearer Continent, can be treated as subjects of geographical research. Something has been done already in this direction, and it may be hoped that the use of this method may increase. The cost is not so prohibitive as might be supposed—not, indeed, so great as the expense incurred by a visit of several weeks to many seaside watering-places. A geographical master or mistress should lead the party and improve the occasion. The bicycle is a useful adjunct, and boys at any rate can do some camping-out on the way. Let us picture what would be learnt by a camp, bicycle and camera journey from the Midlands to John o' Groat's, or from Calais to Marseilles, across to Bordeaux, and back to England by steamer. These two particular journeys have been accomplished in recent years by parties of boys who all came from middle-class homes, in which the question of expense could by no means be neglected.

It is not necessary to cover the whole world in this way. A few journeys are enough to create the spirit of geographical investigation, and this is the point of first importance. No one reads the result of other people's work with so much profit as the student who has himself some practical acquaintance with the spirit and methods of research. It is at this point that the kinematograph steps in with films showing the physical features, the geological formation, the flora and fauna, the dwellings, the industries, the amusements, the public ceremonials, even the religion of the inhabitants of more distant countries. The moving picture will give correct visualisation, and a perception of things as they are.

It is true that not all of the films at present forthcoming are of equal value. Some are mere panoramas, a succession of still photographs, while others have the touch of life which gives reality. The demand for films of the right kind will create its own supply of representations of the life of cities, of all that would be seen from the deck of a steamer passing up the great rivers, of great engineering operations, such as the construction of the Panama Canal, and of religious festivals in European and many tropical countries. Time will not allow the mention of more than a few of the things we wish to see: the lumber

rafts, the grain elevators of Canada, the West Indian sugar plantation with the overseer—a lad of less than twenty-five years—who is father, mother, doctor, lawyer, and magistrate to his gang of 500 coolies, the gold mine with its stamps and extractors at work; but there are countless other sights of interest all within the scope and powers of the kinematograph.

Moreover, learning geography by travel, even on a small scale, is surrounded with financial difficulties for many thousands of primary school children, although something should be done for the children who are buried in the great cities. Among many of these children the condition of mind is still not unknown which prefers town milk, "where you gets it in a nice clean shop," to the country article, "where they squeezes it out of a nasty cow." This is not a flight of the imagination. It exemplifies a reality with which primary-school teachers are coping every day. Let us give them the powerful aid of the kinematograph in their task.

## HISTORY.

We are only at the beginning of the use of the kinematograph in history. It is to be regretted that no films are forthcoming of the pageants of recent years. A great deal of scholarship was brought to bear upon many of these, and the best of them were undoubtedly very instructive. Representations of historical plays have often been remarkably true to reality, and something might perhaps be done by combining moving pictures of the principal scenes, repeated perhaps once or twice, with slides showing selected parts of the speeches and dialogue. This is not the ideal way of teaching the plays themselves; they should be acted. For young people a very humble attempt at acting a play is worth more than all the reading with all the best notes in the world; but the best representations are naturally very expensive, and by the use of the kinematograph they might suggest an ideal which would follow the domestic effort with most valuable results.

But if we are short of material for dealing with our own past, the films of to-day will afford much for the historical teaching of the future. What would we not give for films of the Athenians setting out on the Sicilian expedition; of Cæsar crossing the Rubicon; of Mark Antony coming to bury Cæsar and not to praise him; of the Council of Nicæa; of the signing of the Magna Charta; of Drake's game of bowls at Plymouth; of Cromwell expelling the Long Parliament. But modern and contemporary events will aid the imagination. The Coronation procession, the Durbar; the assembling of Parliament; the

Naval Review; great meetings in Hyde Park; trade union processions, will assist the mind in visualising great scenes of past history. Some, no doubt, there are who will fear the effect of all this on the mystical imagination. If the kinematograph or any other aid to visualisation impaired or intruded itself upon the mysticism of youth, it would condemn itself at once. The subject is of the first importance, and needs discussion. Some of us believe that it will not have such a disastrous influence, but that it will possibly assist in arousing the mystic imagination itself.

#### NATURAL SCIENCE.

In natural science, though we are here to study and I think to praise the kinematograph, we cannot maintain that the moving picture is a substitute for practical work itself; this nothing can, of course, replace, but representations of simple yet graphic experiments deftly and successfully carried out by skilled operators are of great value and interest. They are especially useful to those boys who have struggled with the experiments in the laboratory. Such films are already to hand, showing the preparation of hydrogen, oxygen, and carbon dioxide. Experiments with liquid air can also be shown, together with the simpler phenomena of magnetism and electricity.

Where, however, the kinematograph will come in as a powerful aid in science study is that by adjusting the time factor between the camera and the lantern the experiments can be passed before the eye at a slower or quicker rate. The botanical film showing the growth of a plant is an illustration of the quickening up of the speed.

The ultra-rapid camera provides films which, when slowed down in the lantern, enable rapid movement to be studied more closely. Already films of this kind have been made showing the so-called "quicker than thought movements." The flight of a bullet, the gyroscopic movement of a light ball of celluloid supported by a miniature water-spout, the behaviour of a column of water when a ball is shot off it, may be studied in this way. But all this work is in its mere infancy. From its aid we may look for much light on the study of dynamical problems, and there is no doubt that instructive films will be forthcoming from the researches of scientific investigators.

One example may be given. The spinning of a top—nothing more fascinating, nothing more difficult of explanation. The mathematics leaves even the mathematician no wiser, but sadder; the direct and acute handling of Prof. Perry still requires some visualising in the visions of the night. The rolling, skidding, toppling, and rotating of

the top baffle the imagination; so that it would be a real kindness if the whole motion could be slowed down—and this the kinematograph may be able to do. The gyroscope—which is like Perry's Irish pig; if you want him to go to Cork, you must drive him home—would be perhaps easier of comprehension if time were given for thinking.

Another important dynamical experiment in natural history requires the ultra-rapid kinematograph to demonstrate the true facts and theory. The well-known phenomenon of a cat always falling on its feet would be made intelligible by two films, one in elevation, the other in end section. The working alternately of the fore and hind legs, and the consequent rotation about the long axis of the cat would be seen to account for the total turn of 180 degrees, and safe landing of the cat on its feet.

Some interesting and instructive films can be formed showing the motion of sympathetic springs, also the Wilberforce spring; and a most instructive example is the drawing out of a steel rod in a testing machine to breaking point—the machine being fitted with an automatic extension recorder. The life history of the rod is vividly presented, and it is not without its value that the rod breaks without noise.

The twisting of a rod to rupture is exciting and instructive. If parallel lines are drawn in the rod they will be seen to form screw-like spirals, and as they get closer together they give signs of the end, until in silence the rod breaks.

In natural history and biology wide use has been made of the kinematograph already. We have seen Sir Ernest Shackleton's penguins, Mr. Kearton's beautiful films of birds in their natural haunts, the cuckoo, the tom-tit, the cormorant, and many fishes, reptiles, and mammalia. The films now available are a zoological garden in themselves, and more are coming into use almost daily. Nothing could be more graphic than the many representations of pathogenic microbes, of blood corpuscles, both in the normal state and in process of agglutination of phagocytosis, of the various trypanosomes to the mischievous operation of which many tropical diseases are due. It is in the highest degree desirable that whatever is known on these subjects should be disseminated as widely as possible. Knowledge is not by any means synonymous with immunity, but the forewarned are undoubtedly safer than the ignorant.

If we are agreed upon the value of the kinematograph as an educational instrument, some advice may here be offered as to how to bring it into operation. Schools are now making good use of photographs, models or

casts, and are forming collections which give small copies of our great museums and galleries—not only of the objects exhibited there, but of the valuable maps, charts, and diagrams. A useful plan is for a master to act as a guide to his form and take it periodically through the passages, classrooms, or museums where these photographs are exhibited, taking a leaf from the British Museum book in its living guides. To this, say once a fortnight, should be added a lecture to the form.

Let a room, perhaps the school hall, be fitted permanently with a camera, a lantern for still slides, a kinematograph for showing films, and a camera for making them. Small forms can be taken there; let the boys and girls be prepared for what they are to observe, and as the occasion indicates let all four machines be brought into operation. From time to time films, either hired, or, better still, of home manufacture, can be shown to the whole school, accompanied by still slides and such explanations as may be necessary. In the case of board schools under the same education authority, it would be sufficient for the most central school to be thus equipped; the apparatus could be at the disposal of classes from other schools according to a time-table which would present no great difficulty of arrangement. The rest might be left very safely to the inclination and ingenuity of the teachers, but it would be most valuable if the education authority were to form from among the senior teachers a committee, a sort of educational bureau, the duty of which it would be to suggest and organise a course of educational films, and to see that they were used as widely and as often as possible. There is nothing unduly ambitious about the scheme that has been outlined. Doubtless at first there would be some mistakes and failures, and time would be required for the development of the full possibilities of the method, but facility would come with experience. Many dry bones would live. They would come together, bone to his bone, flesh would grow upon them, and they would stand up an exceeding great army.

#### THE KINEMATOGRAPH IN SCIENCE.<sup>1</sup>

**T**HE method of kinematography is of value to science in two directions. It assists in the advancement of scientific knowledge by enabling movements of natural and other objects to be analysed, and its use may do much to inspire interest in scientific work both in schools and among the general public.

Moving pictures were shown at the old

Polytechnic in London fifty years ago, but they were not produced by a combination of photographs. Many series of photographs of animals in motion were taken by Mr. Edward Muybridge in the United States thirty years ago, and were combined by him in a zoëtrope. Later he arranged successive pictures on glass discs, and by rotating them in front of an optical lantern he was able to produce the visual impression of motion.

The invention of the celluloid ribbon enabled pictures to be taken on a continuous strip of film instead of being arranged on a glass disc, and after careful attention Mr. Edison succeeded in doing this in 1890. The modern kinematograph pictures may be said to date from about that time, though in principle it began when Mr. Muybridge took his hundred thousand pictures of living things in movement. His first aim was to analyse the movements of animals rather than to synthesise them, and it is in this respect that kinematography has proved of value to science. Movements which are too rapid to be seen in different stages by the eye can be impressed upon a succession of rapid photographs, which can then be examined at leisure.

In science teaching the kinematograph may perform a very useful service. For some years the only knowledge of science obtained by most of the pupils in our secondary and other schools has been that of fundamental physical measurements, with a little work in heat and chemistry. Attention has been concentrated upon the quantitative side of science with the view of affording training in scientific method, and the inspiring work done by men of science for the comfort and advancement of the human race has been left out of consideration. The kinematograph can never take the place in education which personal observation and accurate measurement must occupy in the development of the mind, but it can and should be used to humanise a study which, under the present system, does little to create interest in broad results and consequences of scientific work.

No one proposes to substitute the passive contemplation of moving pictures for the individual and practical work required of every student of science. Whether it is physics, or chemistry, or nature study, or geography, the pupil must learn by his own work the value of careful observation, accurate experiment and cautious conclusion, but he ought not to have his outlook limited by the knowledge he thus acquires. Moving pictures may usefully summarise for him the growth of a plant or the development of a frog or insect; they can enable him to realise the great value to humanity of work done on the connection between

<sup>1</sup> From an address delivered during the Educational Conference at the International Kinematograph Exhibition, London, on March 29th, by Prof. R. A. Gregory.

mosquitoes and malaria and yellow fever, or the tsetse-fly and sleeping-sickness; they can show him the great industrial works which depend upon scientific knowledge for their existence, and give him realistic views of places and peoples of which he can only obtain a vague idea from books or ordinary pictures. Wherever the kinematograph enables these human aspects of scientific work to be illustrated it can be used with advantage.

In biological teaching the kinematograph can be particularly helpful. Whether it is the mode of progression of a quadruped or a bird or the movements of leucocytes or trypanosomes or spirochaetes in the blood, they all can be strikingly exhibited by moving pictures. The actual time interval between successive pictures may be multiplied or diminished at will, so that a life-history which may last weeks or months can be compressed into a few minutes. In his first fantastic romance, Mr. H. G. Wells created a time-machine by means of which time could be accelerated or retarded, and a journey could thus be made into the past or the future. The kinematograph is a veritable time-machine, so far as the past is concerned. It can show the life of an insect or the life of a man in a period which is but a fraction of the true duration, and the period of projection may be the same in each case. If the insect be imagined to be endowed with a mind, its life, though but a day, will seem to it as long as the three-score years and ten of man, for the ultimate conception of time is in terms of duration of life. A thousand years may be but a day to the time-machine.

Though the developments of kinematography have been marvellous and extensive in recent years, much more may be anticipated for the future. For educational purposes the instrument is destined to be an aid of first importance, and before long it will be regarded as an indispensable part of the equipment of every up-to-date teaching institution.

## THE CONFERENCE ON EDUCATION AND THE KINEMATOGRAPH.

By MORLEY DAINOW, B.Sc.

### INTRODUCTION.

**A**N exceedingly interesting and very important conference on the kinematograph and education was held at Olympia on March 28th and 29th in connection with the International Kinematograph Exhibition. The conference, which was organised by Mr. Alfred Perceval Graves (Chairman, Representative Committee of London Managers), brought together many educationists of all grades keen on examining critically and, if possible,

developing pedagogically the kinematograph, which has become such a power in the land. Altogether six meetings were held, at which were discussed respectively the general relation of the kinematograph to education and the special relation of the kinematograph to nature study, story-telling, history and geography, science, and bird life.

### THE GENERAL RELATION OF THE KINEMATOGRAPH TO EDUCATION.

The address of Dr. Lyttelton, headmaster of Eton, at the opening meeting created a profound impression. The power of the kinematograph must be recognised to be enormous. If this power be left to itself the danger will be very great. It must, then, be controlled. A resolution embodying this idea, thus: "That this meeting desires to draw the attention of local education authorities throughout the country to the urgent need of utilising the invention of moving pictures for educational purposes," was passed unanimously.

If the kinematograph be controlled, can it, however, be developed so as to be of educational value? Mr. Graves answered this in the paper prepared for the conference by the eminent German psychologist, Dr. Schultze. "The Japanese Board of Education has for years past used for instruction in ethics in all Japanese schools pictures showing how, in certain cases, not only grown up people, but children, should act. All the apparently simple moral maxims which should rule our lives, and are nevertheless so difficult to apply, are thereby much more vividly impressed upon the children than by the mere account of such actions, or, worse still, by merely moral instruction. The kinematograph is, however, capable of exceeding these pictures in palpable clearness, and thereby also impressing their teaching far more lastingly."

### THE SPECIAL RELATION OF THE KINEMATOGRAPH TO SCHOOL SUBJECTS.

(a) *Geography*.—To a teacher about to take a class of boys in the geography of, say, the whole of Europe, in one year, the possibility of giving an adequate picturesque introduction to this presents big difficulties. Much may be done by means of relief models and maps. These make an excellent background and foundation for geographical knowledge; but there is need for something much more interesting than cardboard or clay contrasts of heights, than painted colours of school maps, than pictures in primers, however good, and than the description of a teacher, however eloquent. "The help which the kinematograph can give particularly in the teaching of geography can hardly be overrated," said Mr. Graves, quoting

Dr. Schultze. It is the kinematograph which, rightly used, will give this missing element in geography teaching. The dangers incident on its use, and dwelt upon by Prof. Lyde in his speech and by Mr. Mackinder in *The Times*, are dealt with below. In connection with this subject, Colonel Sir James R. Dunlop Smith, of H.M. India Office and of the Victoria League, tells me that there are a large number of films in existence depicting life in various parts of the Empire.

(b) *History*.—In 1905 the Board of Education wrote: "For the first two years picturesque and dramatic stories from history, illustrated by bright pictures which lay stress on the outward appearance of the people, soldiers, ships, houses, &c., of the time, will be the best material for awakening in the scholars a living interest in history." "One important object in teaching history should be to build up gradually in the mind of the pupil a picture of the development of society" (University of London Day Training College Syllabus, 1911).

These two quotations serve to emphasise the importance of the picture in history. A film was shown at this meeting called "The Siege of Calais." Though it reflected great credit on the enterprise of the makers, it aroused hostile criticism, notably from Mr. Hankin (representing the Historical Society), who complained that no moving pictures produced so far satisfied an essential minimum of scholarship and art, without which they would be very harmful. Most speakers, however, though complaining of the quality of existing moving pictures, expressed hope in the future moving pictures. The following resolution was moved by Mr. Bruce Forrest (headmaster, Wood Green Secondary School), seconded by Mr. Fairgrieve (University of London Day Training College): "That in the opinion of this meeting representation be made to the firms concerned of the desirability of steps being taken to keep a record and specimen of useful topical films for teaching purposes," and was carried without opposition.

(c) *Nature Study*.—Miss Von Wyss (University of London Day Training College), on insect life, and Miss March (Fenham Training College), on bird life, clearly showed that the kinematograph could exhibit beauties of, and incidents in, nature that could not otherwise be perceived. A very fine film was shown at this meeting giving the natural history of the dragonfly.

(d) *Science*.—Except in certain parts of geography we have so far dealt with the kinematograph as a synthetic force. In scientific work its most useful function is analytic. This function was referred to in a paper by

Prof. R. A. Gregory. All the realms of science can be invaded by this instrument. "The capabilities of the kinematograph for reproducing biological phenomena have been abundantly demonstrated." The film "A Drop of Water," shown at this meeting, admirably illustrated this point. The best use of the kinematograph in connection with science teaching is to humanise a subject which in most of our schools is now limited to fundamental measurements and heat with a little chemistry. The quantitative work done in schools as a training in scientific method requires to be supplemented by the broad views of nature and science which the kinematograph can supply.

(e) *Story-Telling*.—Mr. Burrell doubted whether the moving picture would be of much help in story-telling. He had found in his twenty-five years' experience as a story-teller that a still picture on the screen was of great value and interest, but still pictures were drawn by artists, whereas the moving pictures depicted human beings performing stagey movements. The writer of this article pointed out that the moving picture was a great asset in language teaching, and that probably in every school in the kingdom the story seen at a picture theatre could be used as the most successful subject for oral or written composition.

#### PEDAGOGICAL PRECAUTIONS.

(a) *Dangers of the Moving Picture*.—Dr. Lyttelton, Prof. Lyde, Dr. Hayward, Mr. Mackinder and other important educationists have inveighed against the "primrose path" of the kinematograph. "The first object of education was to teach the child to learn for itself." The reply to this, an idea continually brought up by the writer of this article at the conference, is that the moving picture should never be used until the child's mind has been previously prepared by the teacher for the particular series. The kinematograph as a medium for teaching is on the same order as the chalk and the blackboard. It is simply an aid to the teacher and the child. It is an instrument for the better functioning of the educative process, and so must obey all the conditions of the process.

(b) *Method of Using the Kinematograph*.—The best way of satisfying these conditions is to treat the kinematograph as one treats a blackboard. Each classroom, or at least each school hall or laboratory, should be fitted with such an instrument. Only thus can we be sure that this extraordinarily interesting and powerful aid to teaching can be used at the right moment, that is, at any particular stage in the development of any syllabus of any sub-

ject where moving pictures are the only satisfactory form of explanation. This suggestion is not purely theoretical, for the writer can say, on the authority of many manufacturers, that machines can be made capable of being used for such purposes, that they will be cheap and that they are certainly safe.

Mr. Graves deserves many thanks from all who desire to improve education for bringing together such distinguished speakers and chairmen for a conference upon a subject of real importance. The Board of Education sent two representatives to the conference. All the films shown were produced by Messrs. Pathé Frères, and many are excellent examples of this firm's fine achievement in kinematography.

#### THE ANNUAL CONFERENCE OF THE NATIONAL UNION OF TEACHERS.

THE forty-fourth annual meeting of the National Union of Teachers, which was held at Weston-super-Mare during Easter week, was more concerned with secondary education than any previous meeting has been. The President, Mr. A. Dakers, of Newcastle-on-Tyne, in his presidential address, made a powerful plea for equality of opportunity. There was a marked feeling of friendliness towards the secondary school, and the dominant note in reference to secondary education was that of approval of the conditions obtaining in secondary schools, coupled with a plea for similar treatment for the primary school. This is an excellent sign, and is reinforced by a resolution from Bradford which was not reached.

There is, of course, a good deal of *primâ facie* ground for these contentions, and if the money could be found, few educationists would grudge the reforms demanded. Naturally, Mr. Dakers demands reform of the primary school first, but he desires to see a real co-ordination of all forms of education. When he comes, however, to speak of secondary education in itself, he is on more debatable ground. We are not yet within sight of Victor Hugo's ideal—"Free and compulsory primary education for all; free secondary education for all who have the ability and the desire." His plea that the universities, including the older universities, should be more open to the people will find some sympathy, but many will demand that care shall be taken that no harm shall come to the older universities. He demands, also, maintenance grants to those who cannot attend secondary schools without them, and that the educational ladder should give place to a broad highway.

From the secondary-school point of view, the two outstanding features of the conference were the election of the first secondary schoolmaster as vice-president, in the person of Mr. W. B. Steer, of Derby, and the address by the Lord High Chancellor, who came, as he confessed, to take counsel with teachers. As one speaker said, indeed, "Lord Haldane said much, but told us little"; but he said enough to show that the Government is earnestly considering a new advance towards a scheme of national education in which primary, secondary, and higher education will be regarded as interlocking with one another, and will be treated so that each part shall receive its proper share of attention and support. There was a "rare and refreshing" hint in the statement that the Minister of Education is not without the support of the Chancellor of the Exchequer in the coming scheme, so we may hope that the money, some millions of which will be required, will be forthcoming. Lord Haldane betrayed, as usual, a fondness for German methods, which may, or may not, be found suitable for transfusion into our English schemes. But we shall agree with him that a real national system should, as in Germany, pivot on the secondary school. His own description of his mission is perhaps the best, namely, that he wished to create a favouring breeze of public opinion which would rise to a tornado sufficient to compel the proper amount of movement in the direction of reform.

On the evening of the same day the usual meeting of the secondary-school teachers was held in the School of Art, where papers were read on superannuation and on secondary education in rural districts. In the former subject the paper suggested some points to be insisted upon in connection with the Government scheme and some dangers to be feared. Amongst the former were (1) the provision of benefits for service previous to the passing of an Act; (2) the establishment of a breakdown scheme; (3) the recognition of service in any efficient school now or in time to come upon the Government grant list; (4) service to count in either a primary or a secondary efficient school for teachers who pass from one system to the other, and (5) the inclusion of teachers in any local scheme of superannuation adopted.

Three main dangers were pointed out: (1) the demand for optional retirement earlier than sixty-five; (2) the demand for return of premiums in case of death or retirement before the pension age is reached, and (3) the desire on the part of some to pay more into the fund than necessary. Sir James Yoxall, M.P., in originating the discussion, endorsed the ideas of the reader of the paper. He further

explained what the N.U.T. had done in the matter, how it had given evidence in favour of pensions to secondary-school teachers before the Departmental Committee, and he emphasised again the point that the union is quite willing that secondary-school teachers shall be superannuated on terms more favourable than primary-school teachers have obtained.

Two very interesting papers were read on higher education in rural districts, by Miss M. Wills, headmistress of Bishop Fox's School, Taunton, and Mr. D. R. O. Prytherch, headmaster of the County School, Penygroes, Carmarthenshire. Miss Wills insists that a good general education is the fundamental necessity for every child, and deprecates the too great and too early use of the new-fangled Yankee notion of vocational instruction. We will not spoil her suggestive paper by attempting to summarise it.<sup>1</sup>

Mr. Prytherch holds the same view, which is probably general in this country, on vocational instruction, and urges much greater provision of rural secondary schools with an agricultural bias. This, he thinks, might give the agricultural colleges a better prepared race of students. He gives a remarkable example of a decaying rural school which has been saved by the adoption of this modification and is now flourishing. A discussion followed in which it was made clear that there is too little higher rural education, and that such as exists is unequally distributed.

Three sectional meetings were held on the Tuesday afternoon. At one of these a paper was read by Mr. F. W. S. Gladwin, of the Stratford Higher Elementary School, on the transfer of children from primary to secondary and technical schools. The main part of this paper is printed elsewhere in this issue. The discussion which ensued showed much interest in the question, and a desire for something broader and fuller than can be given to the child during the years he spends in the primary school.

Several resolutions respecting the prospective education reforms, State contribution for all forms of education, the connection between primary and secondary education, scholarships and free secondary education, and university training for all teachers were not reached. But the scope of the resolutions and the discussions shows that the N.U.T. is interested earnestly and vitally in secondary education. No jealousy of loss of pupils by transference was shown, and one felt that a real desire for the greatest benefit to their pupils, whether in the primary school or

after they had passed into the secondary school, was in the minds of the speakers. It is indeed pleasing to note such evidences of a growing desire for solidarity as have been shown in the doings of the 1913 conference of the N.U.T.

### THE INTERNATIONAL HISTORICAL CONGRESS.

IN the early days of last month there was held in London an International Congress of Historical Studies, one of a series of such congresses, at which students of history from all parts of the world meet to compare notes and exhibit the most recent results of their research. The motto of the congress might well be "Nihil humani a me alienum puto"—the range of subjects of which it treats is so wide. Though no papers dealt with prehistoric man, the section devoted to Oriental and Egyptian history heard some on periods long before the Christian era, some of them of wide scope, such as the early history of caste; some dealing with minute points, such as the so-called Sesostrius of the twelfth Egyptian dynasty. Greek and Roman history, mediæval and modern, colonial, naval and military, ecclesiastical, legal, economic—all these were the subjects of one section or another. Even the history of natural science and of music provided subjects for some of the contributions. And as the scope of the history dealt with by the congress was wide in time, so also was it in space. No part of the world which produces documents was absent from its mind. It might be said to have "surveyed mankind from China to Peru."

About two hundred papers in all were read, and more or less discussed, in the course of the week; for the most part they were "specialist" in character, but the variety was so great that the "general auditor" was fairly certain to find a few things at least to interest him. For example, Prof. Silvanus Thompson's paper on the origin and development of the compass-card was at once the work of an expert and a topic of general interest. Incidentally the teacher who had ever floated a magnetised needle on a cork in order to edify small children learned here that the Mediterranean navigators of the twelfth century employed the same primitive apparatus for strictly business purposes. Mr. Jerome, of Capri, produced some cogent arguments to show that the story of Tiberius's extraordinary orgies in that island was less history than a rhetorical exercise by Tacitus on the general theme. How unnaturally wicked is the tyrant! Another paper of general interest was that of Prof. Boubnov on the origin of the Arabic notation; and

<sup>1</sup> Copies of all the papers can be obtained post free by application to the general secretary, 67 and 71, Russell Square, W.C.



members of the congress who were indifferent to the history of music were charmed by Principal Hadow's discourse on Tudor church music and the beautiful renderings in illustration by members of the Westminster Cathedral choir.

It is, of course, impossible to attempt anything like a conspectus of so large a number of papers, which were delivered, many of them simultaneously, in different parts of London. But mention should not be wanting in an educational journal of a handful of papers dealing with the history of culture. Prof. Mandonnet, of Fribourg, showed that the foundation of the Dominicans was the Church's mode of meeting the crisis in the history of education which marked the twelfth century. Mr. Coulton traversed the contention that the monasteries were places of general education, and in the course of his remarks proved that some mediæval monasteries, at least, tried to "keep school" in order to keep the wolf from the door. Prof. Davidsohn showed how mistaken is the commonly accepted view that the Florentine "Renaissance" began with Petrarch. This paper justifies those historians who are chary of using the labels which are so dear to the compilers of schoolbooks. Prof. Foster Watson gave a masterly presentment of the claims of Vives to share the honours of Erasmus and Budæus and to be ranked above those scholars by virtue of his social ideals and projects.

When we remember that history as a science is very young and is rapidly growing, that there is no statement of former writers which is not eagerly challenged and critically examined in the light of constantly new discoveries, we can understand that many of us may have the same thought as was in the mind of Lord Morley when, in a speech to some of the delegates, he said he wished he had the power to understand all the papers read at the congress. Most of us must be content with the thought of O. W. Holmes when he saw the huge collection of books in the British Museum—how little each of us is, even though we may have made some contribution to the thought of our time.

For those of us who are teachers there is a moral in all this. We have to be infallible in our school classes. The young mind wants a sure and certain guide. Thus, in the light of the knowledge that history is a subject in which the "facts" are for ever apt to be revised, let us adopt the practice of the mediæval Popes who were hampered by their infallibility in their position as a court of appeal. They gave decisions, "so far as the evidence before us goes," reserving to themselves the right to hear the case again if new evidence were forth-

coming. Therefore it is the duty of every earnest teacher to read, so far as time and money will allow, the latest books written by the students of history and correct the statements of the school manuals. Such books are published from time to time, and in these days it is truer than ever that no one can teach who is not also learning.

#### PERSONAL PARAGRAPHS.

MISS K. H. MASSON has been appointed headmistress of the County High School for Girls, Sale, Cheshire. Miss Masson is headmistress of King Edward VI. Grammar School for Girls, Louth, Lincolnshire; she is to be succeeded in that office by Miss C. Hedley, of the County Secondary School, Peckham, and formerly of Clifton High School, Bristol.

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THE REV. E. G. SELWYN has been appointed to succeed the Rev. Thomas Field as warden of Radley. Mr. Selwyn, who was a scholar of King's College, Cambridge, and classical lecturer at Corpus Christi College, became a fellow of the latter college in 1909. At the University he secured a number of prizes, but he does not appear to have had any experience as a schoolmaster. The appointment cannot, therefore, be expected to commend itself to the teaching profession.

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ON two or three occasions within comparatively recent years similar appointments have been made, but, so far as one can judge, none of them has been such a striking success as to justify the total disregard of the claims of men in schools of the same type—men who have had an education, both school and university, at least equal to that of the men appointed, and have, moreover, served with distinction their apprenticeship as teachers and heads of departments. Youth, personal charm and ready wit may be admirable qualifications for a headmaster, but they cannot outweigh the experience gained in fifteen or twenty years of actual teaching.

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THE death is announced of M. Gabriel Compayré, Inspector-General of Secondary Education in France. He was a member of the Academy of Moral and Political Sciences and author of a large number of educational works; among the best-known are his "Éléments d'Éducation civique," and his "Histoire critique des doctrines de l'éducation en France." M. Compayré was for some years

rector of the Academy of Lyons and a member of the Chambres des Députés.

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THE meeting of the secondary-school and technical teachers at the University of London was both large and representative. The headmasters of Eton and Harrow were present; the headmaster of Westminster was away on account of ill-health; the headmaster of Winchester regretted his unavoidable absence. The headmasters of the great public schools thus identified themselves with the larger body of secondary-school and technical teachers. With very few exceptions the teachers had out the side that has been, apparently with good effect, urging their case during the last few years. One of the exceptions, Mr. P. Coleman, the chairman of the Association of Teachers in Technical Institutions, is now on the staff of the Northern Polytechnic. He was formerly at Owen's School, Islington, and afterwards for a short time at Mill Hill.

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MR. J. F. P. RAWLINSON, K.C., to whom the debt of the teachers is increasing, is an old Etonian and a member of Cambridge University, which he now represents in Parliament. Mr. Rawlinson took an active interest in the position of teachers under the Insurance Act, and since the attempt to obtain their exemption from compulsory insurance failed he has energetically furthered their endeavours to obtain pensions. His keen insight, his extensive knowledge of men, business and Parliament, must have been of the greatest help to their Joint Pensions Committee.

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THE death is announced of the Rev. A. E. David, chaplain of Dulwich College, in his fifty-second year. Returning in 1905 after some fifteen years' work in Australia, whither he had gone on account of ill-health, Mr. David was appointed acting chaplain, and a year later chaplain, of Dulwich College. He was a man of strong personality and very popular amongst the boys.

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Two advertisements that have recently appeared in the "personal" column of *The Times* must have caused some misgiving and disgust to both schoolmasters and university teachers—one from a public schoolboy and university graduate begging for money "to have a good time," and the other, more recent, from "an undergraduate tired of being poor," begging to be adopted by wealthy people. It is difficult to reconcile one's opinion of an English schoolboy and the picture of the weak, almost characterless, utterly contemptible sponge from whom alone such an advertisement could originate.

ONLOOKER.

## GRAMMATICAL TERMINOLOGY.

FOUR years ago a joint committee representing a number of educational associations was formed with the view of drawing up a scheme for a simplified and consistent grammatical terminology, tending in the direction of uniformity for the five languages usually taught in schools. It was felt that much time is wasted owing to the variety of terms used to designate the same grammatical phenomena. Even when dealing with the same language, editors and writers of grammars are often inconsistent, and rarely do two use precisely the same terminology. The difficulty is to produce a scheme of grammatical terms which not only possesses the desired uniformity, but is also workable in the teaching of such languages as Latin, Greek, French, German and English, having distinct differences of sentence-structure.

The interim report of the committee was published at the end of 1909, and in our issue of February, 1910, we printed in full that part of the report which contained the committee's recommendations. From inquiries which have reached us it is clear that many teachers are anxious to learn how far the recommendations of the committee have been found useful and practicable in the schools in which the attempt has been made to adopt them. At present there appears to be some doubt as to whether the recommendations represent the final views of all the associations responsible for them, or whether they are merely tentative.

With the object of obtaining an authoritative statement upon these and related points we asked the chairman of the committee, Prof. E. A. Sonnenschein, to summarise the progress which has been made since the report appeared, and to state the present position of the matter. This he did in an article contributed to our April issue. We submitted this article to a number of representative teachers and others concerned with the teaching of languages, and invited expressions of opinion upon it. The replies with which we have been favoured are subjoined.

By ARTHUR BURRELL, M.A.

Late Principal of Borough Road Training College.

I IMAGINE that many people asked to give an opinion on the recommendations of the Joint Committee on Grammatical Terminology are in a like case to myself; they cannot put their hand on the report. Prof. Sonnenschein's paper should have included in however brief a way the main results. Nor can I give any opinion as to the value of the attempt to adopt the recommendations; but I would like to make certain suggestions to the promoters of this much-needed standardisation.

The old pronunciation of Latin, if not dead and

gone, is dying and going; and this was largely due to the fact that the suggestions were summarised on a card. Could not the committee publish a penny card with the new nomenclature placed over against the old, a dozen illustrative sentences being given in three or four languages, as (I believe) in the report?

But a far more necessary step requires to be taken. The committee enumerates eight important associations which have at general meetings considered and reported not adversely on its work. I put this as strongly as possible, because "not adverse" is the general attitude towards standardisation of all kinds, whether it be concerned with phonetic scripts, decimal coinage, spelling reform, or typists' dress. But the most important association which for educational purposes exists in England is not mentioned, and so far as I know is not represented—of course, I mean the Publishers' Association. Publishers have by schoolmasters always been left out of account. Our greatest ally (or enemy) has been allowed to get his information as he best can, and though big firms may employ qualified readers and advisers, their readers and advisers are not necessarily connected, as they should officially be connected, with the big educational associations. We are in the dark as to one another's plans, wishes, and suggestions. The mere presence of showmen or salesmen at educational congresses does little; we need to hear advice from, and give advice to, qualified educated representatives of publishing houses.

But there is other work before the committee, and though it may seem to be outside its scope, it can at least hand it on to some qualified person. The greatest need for the student of grammar is a brief statement in book form of the present knowledge in regard to historical syntax. It is not enough for a teacher to try to explain—often in the most disingenuous way—that "it is I" and "c'est moi" are right, and "it is me" is wrong; that *ταῦτα*, a neuter plural, requires a singular verb, and "bella," a neuter plural, requires a plural verb; that "I want my coat brushing" is dialectal, and "there's no one here but I" is permitted English (if it be). The standard books the pupil reads are full of grammatical errors, sanctioned; and the breaking of the laws of logic (*i.e.*, grammar) is never explained by reference to history and what I may call the sidelights of language. One attempt based on Mätzner was made to give us a meagre historical syntax, and this did not deal with conversational English or with any language but English. The best account of historical syntax (English) is an antiquated book written by a German.

The main difficulty which the committee perhaps has not fully realised is that a good deal of the new nomenclature is based on the old Latin and Greek accident, and the coming school of the people for whom I suppose grammatical terminology requires standardisation knows nothing of such accident; it knows no "accusative," and cannot understand the term (who can?). It is obvious that by the school of the people I do not mean the elementary school, though the elementary school, if it preserves grammar at all, will have to toe the line. This non-classical difficulty seems to me to be immense; and

to meet it the best method would be to send out a few emissaries, missionaries, to explain and illustrate to teachers and pupils what the change in terminology means. These missionaries would win the children to their side soon, for the most obtuse boy will see that under the new system his grammar will take up less time and will have a chance of being interesting. If the missionaries were Chrysostoms, carefully chosen, they might even convert the teachers.

By Prof. R. S. CONWAY, Litt.D.

Professor of Latin and Indo-European Philology in the University of Manchester.

I THANK you for your kind invitation to join in the discussion on grammatical terminology; but there is very little for me to do beyond expressing my cordial agreement with all that the chairman of the committee, Prof. Sonnenschein, has said in your April number. It is, however, perhaps well that I should indicate the three points in which my own judgment differed from that of the majority of the committee, and in which I am, therefore, unable to accept its recommendations in practice. (1) The old name *pluperfect* seems to me free from objection. To the student it has really no connotation whatever, and its denotation, *i.e.*, its attachment to a particular set of forms, has been established by a long usage in Greek, Latin, German, and English. On the other hand, the term "past perfect," which is in use in French, seems to me open to serious confusion with the past or aorist meaning of the perfect tense in Latin, and with the past or aorist tenses in other languages. (2) Although the current term, *imperfect subjunctive*, in Latin is not free from objection, the title "past subjunctive," suggested by the committee, seems to be open to the graver objection of ambiguity, and to be also more inconsistent with the use of the tense in present unfilled conditions than the term *imperfect*. (3) The words *protasis* and *apodosis* are difficult for English schoolboys; but I feel that the terms "if-clause" and "then-clause," suggested by the committee, do not adequately replace them, since in many cases no "if" is contained in the clause of supposition, and the term "then-clause" might obviously have other meanings. It is very difficult to get satisfactory equivalents; but it occurs to me now that perhaps a simple solution might be found by simply cutting off the Greek ending of the words and describing the clauses in question merely as *protase* and *apodose*. That would remove what is at present their most tiresome feature in class use, namely, their great likeness in sound. "Supposing-clause" and "conclusion-clause" are also possible.

By EDITH HASTINGS.

A RECENT number (April 5th) of *The Spectator* contains an article on the International Congress of Zoology, from which I venture to cull (with a few necessary changes) the following passage, as being singularly apt to the present discussion:

"The question of nomenclature, though a dull subject, has the power of raising more heated discussions

among" grammarians "than any other topic. . . . Now the chief, if not the only, object of" grammatical "nomenclature is to give all" grammarians "of every nation the means of acquiring or imparting knowledge about the subjects of their studies. The disaster is that almost every" grammatical notion "has at one time or another received several . . . names. . . . Some" grammarians "took a fiendish delight in changing the names which they thought unsuitable. There has gradually grown up a long list of synonyms. No one knows which is the proper name to use. It is essential that uniformity should be attained."

It will scarcely be disputed that a reform which is demanded to simplify the labours of men of science must be even more important where mere children are concerned, children all and sundry, dull and clever. The terms used in grammar are moreover not only redundant, but often meaningless and repulsive to the young mind, which not uncommonly avenges itself by producing a "nice derangement of epitaphs." As an instance of instinctive aversion to such words may be quoted the answer recently given by a very intelligent child to a question as to the point reached by the class in grammar: "We are learning to divide sentences into Enlargements, and other things I don't remember the names of." The only term that remained in the memory was the *vivid* one, which unfortunately happened to be the name of the least important of the divisions usually made in analysing a sentence. Grammar being only a means to the study of language and literature, and terminology a means to the ready handling of grammar, it is surely good policy to expedite the way to the ultimate goal by relieving the memory of as much of the baggage of grammatical terms as can safely be dispensed with.

In the last three or four years I have had opportunities of discussing the matter with a great many teachers individually, and to the best of my recollection they have without exception expressed the opinion that the adoption of uniform grammatical terminology would be an unmixed boon. In many schools the report of the Joint Committee is already adopted in practice, and though in others attachment to text-books has hitherto stood in the way of change, there can be little doubt but that this difficulty would soon be overcome if examining bodies would all adopt the reformed terminology, as the bringing of existing text-books into line can generally be done by a few pencil strokes.

R. W. HINTON, B.A.

Formerly Headmaster, Haberdashers' Aske's School, Hampstead.

THE recent article on this subject by Prof. Sonnenschein, while reviving the active interest of teachers who have studied it, will probably also encourage them to report progress, and possibly to offer some useful criticisms, for it must be generally felt that the matter has not yet reached the finality stage. A useful and beneficent work has been undertaken, of which one result will be a closer examination of both the old and the new terminologies, with the result that

further improvements may be discovered; and if a small standing committee existed to receive and collate them the whole could be widely tested; and if a small handbook or condensed epitome of general terminology with brief definitions were compiled, which would serve as a scholar's companion to the existing grammars and be gradually absorbed into them, it would be very helpful. The subject-matter should be concise and in categorical form, with synoptic tables or paradigms, and a full list of terms in columns in the several languages. The book itself might be issued in each language, and might be sold at a profit for about sixpence.

If any criticisms are opportune at this juncture one may ask whether the committee, having concentrated on details, has not sometimes been unmindful of their relationships to general principles which would correlate and control them. A few examples may be given.

(i) *Classes of Words*.—We always call a noun a noun, whatever its functional relations may be. Pronouns should be similarly treated, and then we call *my* (book) a pronoun and not an adjective. We have pure (substantive) pronouns agreeing in person, gender, number, with the nouns *for* which they stand; similarly we have adjective pronouns (not pronominal adjectives) agreeing as above, and often also as to number, gender, case, with the nouns *to* which they are joined. Again, pronouns and adverbs are sometimes interrogative (*who, where, &c.*), but they are non-interrogative and merely conjunctive in subordinate clauses of non-interrogative sentences. Lastly, words like *how, why, where, &c.*, are conjunctive adverbs rather than adverbial conjunctions.

(ii) *Case*.—May not all case forms or usages be classed on general principles? For example:—

(a) Subjective cases—of assertion—in agreement: nominative. The term *nominative* is defective, and should be discarded for *subjective*.

(b) Objective cases—of action or relation—by government: accusative, dative, ablative (locative, instrumental, &c.).

(a) or (b): vocative, genitive. The latter term may, as suggested, displace *possessive*.

Case-relationship is still a reality, although many case-forms are extinct, and children should classify by sense, whether the guiding forms occur or not.

The terms subjective complement, objective complement, adverbial complement, are more comprehensive than predicative adjective, &c.

(iii) *The Verb*.—The chief function of the verb is to assert, rather than to "indicate," and the finite moods are modes or forms of presenting an explicit assertion. In some verb-forms the assertive element or predicating power is wanting, but they are still verbs in essence and origin, and are grouped with verbs; they retain the verb-power of governing, and should not be called verb-nouns or adjectives, their substantival or attributive relations being a secondary feature. Hence the infinitive and the gerund, supines and participles form the non-finite moods, being undetermined in form as to time and person, and also (except the participles) as to number.

Respecting tense in verbs, we note two main features: first, the *time* of the event (with respect to the time of the speaker's assertion), and then its nature, as being an action or event asserted as a repeated, or continued, or a single simple occurrence undetermined in these respects. We may now face what is perhaps the most difficult subject in the report—the tense to be called future in the past. The form of its auxiliaries suggests a past tense, but as they are used indiscriminately for present, future, and past events, the time-element may well be ignored. An attempt to describe in detail the future (of what?) in the past (of what?) of the might-should-would-verbs in a variety of test sentences makes confusion more confounded: a child should be spared the use of a term self-contradictory in form, easy to use anywhere, and impossible for him to explain or justify.

A generalised treatment of the moods in the four languages with recognition of the two functions of tense (either of which may be occasionally not presented) will allow of a simple, logical, and adequate solution—at least for young pupils. The following is suggested as a workable scheme of the moods of verbs:

(1a) The (Simple) Indicative.—Direct assertion of an event as actual, having tenses present, future, past, each simple (*unbestimmt*) or perfect in form; and, in English only, also continuous.

(1b) The Dependent Indicative.—Direct assertion of a conditioned and therefore dependent event. The tense here is undetermined, *i.e.*, indefinite as to the actual time-element, and it has no form to indicate relative time; as a simple dependent statement, let us describe it as indicative mood, dependent tense: simple or perfect, or (English only) continuous. This dependent tense occurs only in French (*je serais*) and its equivalent English.

(2a) The (Simple) Imperative.—Direct assertion of actual event, in form of command, &c. Present tenses only, except in Latin, which has also future (*ama, amato*).

(2b) The Dependent Imperative.—Indirect assertion of event as desired, therefore not actual; transferred from the subjunctive.

(3a) The (Simple) Subjunctive (or, better, Conjunctive).—Indirect assertion of event supposed, or based on a condition expressed or implied. In present and past tenses only, except in German, which has also future (*ich werde*).

(3b) The Dependent Subjunctive.—In English, with *should* as equal to (if I) were to; in German, *ich würde*; none in French or Latin. To be described as subjunctive mood, dependent tense.

(4) The non-finite moods have been considered. With reference to the participles in *ing* and *ed*, we may note that they are no longer called present and past participles; they are undetermined as to the time-element; they merely distinguish between completed (perfect) and incompleted (continuous) events.

Other interesting matters (especially the various uses of the terms strong and weak) deserve further consideration before a scheme of harmonised terminology can be regarded as complete, but there is not space to discuss them now.

By P. SHAW JEFFREY, M.A.

Headmaster of Colchester Royal Grammar School.

I SHALL probably be merely endorsing the opinions of others of your correspondents when I mention the satisfaction it gives to members of the Terminological Committee to see that many modern grammarians are adopting the methods recommended in their comparatively small pamphlet produced with so much labour.

*Parturit mons.* I have myself been chiefly interested in the French and Latin grammars written on the new lines by our chairman, Prof. Sonnenschein, and I find in practice that the general arrangement of these books certainly does bring about many of the results one hoped for as tending to the simplification of ideas and a common-sense treatment of language.

There is, of course, a good deal still to be done in this field. So soon as English grammarians have become masters in their own house it will be desirable to approach the grammarians of France and Germany—America is already in sympathy with us—with a view to bring about an international congress, so that the differences which still remain may be discussed and the way prepared for a complete solution of the terminological difficulties which still confront the student of modern European languages.

If this reform could be combined with some simplification of spelling in these, and with a standardised European pronunciation of the ancient tongues—for the "new" pronunciation of Latin and Greek as affected by Englishmen differs still from both the French and German pronunciation of the dead languages—then indeed we should meet on common ground, and our children at least might learn without tears.

By D. MACGILIVRAY, M.A.

Hillhead High School, Glasgow.

PROF. SONNENSCHN'S article on the progress of the movement for greater uniformity in grammatical nomenclature is singularly opportune, as it once more concentrates attention on a subject that had almost faded from the public view. For this neglect the Joint Committee must be held in some degree responsible, as, until the appearance of Prof. Sonnenschein's article, no attempt seems to have been made to bring the final recommendations of the committee prominently before the educational public. So far as I am aware no notice of the report in its revised form has appeared in any of the leading educational journals or magazines.

The formation of the Joint Committee was hailed with a chorus of approval from all quarters, but the issue of the interim report cooled the ardour of many would-be reformers. Like the young man in the parable, when they found how much they had to give up they turned away sorrowful. Yet it was inevitable from the beginning that the report should do violence to many cherished grammatical notions that were embalmed in names that had become almost sacrosanct to their sponsors. The discussions on the subject that appeared in the proceedings of the various associations represented on the Joint Committee reflected the disappointment experienced by those who found their pet names brushed aside for others that did not seem to

them to express the word-relationships with anything like the same accuracy and appropriateness. As a consequence, the report was everywhere received in lukewarm fashion, and with reservations which were so numerous and so varied as to seem to leave little hope of ultimate agreement.

This was in 1910, and from that time to the present the whole question has been under eclipse, so far at least as the general public is concerned. Prof. Sonnenschein's article proves that the Joint Committee has not been idle, and that a very considerable measure of progress has been made. The most important fact is that this committee, representative of so many different interests, has been able to arrive at a practically unanimous finding. But of all this scarcely an echo has reached Scotland, and neither in the proceedings of the Classical Association, the English Association, nor the Modern Language Association there has the final report come up for review. This may not be the fault of the Joint Committee, but it must bear some of the responsibility for the failure to give the final report the publicity it merits and demands.

The ultimate issue, of course, lies with the associations interested. If they give their blessing to the reform terminology, even though it should be a majority blessing, then there is no doubt that the committee's suggestions will be very generally and speedily adopted. It is therefore the duty of all who are in general agreement with the recommendations to raise the subject at the meetings of their various associations, and obtain a definite finding thereon.

All, or almost all, are agreed that the present tangle of grammatical nomenclature is a very definite and intolerable evil. Every school, sometimes every class in the same school, and every text-book, has its own much-prized names, differing in different languages, to describe the same relationships in speech. In all this we are wasting the time of the pupils and contributing to the confusion of their thought. The number of new ideas which meet the wakening mind of the pupil is bewildering enough without deliberately adding to it by creating distinctions that do not distinguish. Even to the mature mind it is not easy to see a concept exactly the same under different names, and to the mind of the child the concept and its name are inseparably connected. If therefore the one is arbitrarily changed, the other must be correspondingly affected. Our own reluctance to change the terminology to which we have become accustomed should give us the measure of the confusion and bewilderment occasioned to our pupils by the arbitrary change of names to express the same ideas. It is surely then not too much to ask that we should make some sacrifice of names dear to us if thereby we can make the hard places smoother for our pupils.

With some the question of terminology is bound up with the question of method, and it is this fact which makes some of the greatest of English teachers reluctant to come into line with their fellows. But, after all, the amount of method involved can scarcely be said to be material. In any case, to do a great right we should all be prepared to do a little wrong to our own convictions, which are, after all, possibly only prejudices and preconceptions.

While the primary aim of the Joint Committee was to arrive at a common system of nomenclature, a secondary and no less important object was the simplification and unification of the grammatical terminology of the mother-tongue. While the first object has been admirably carried through so far as the committee is concerned, it can scarcely be claimed that it has proved equally successful with the other. In this respect the committee has differed widely from the committee appointed by the French Government to do the same service for French pupils. In the latter case the committee failed to come to any agreement on the question of a uniform terminology for all languages, but it did succeed in bringing unity and simplicity into the terminology of its own language. The recommendations of the Joint Committee are excellent for all pupils who are taking up some other language or languages in addition to English, but, as they stand, they can scarcely be approved for the ordinary primary-school pupil whose language study will be limited to the mother-tongue. The terminology of the report is largely a terminology purposely framed to suit highly inflected languages. This was inevitable if a basis of agreement was to be arrived at. But it is just this fact which prevents it being suited to the requirements of the primary school. There is no need to introduce the pupils of those schools to distinctions of case, &c., which are not required by the language they are studying. The English Association might well take up this part of the committee's report and adapt it to the circumstances of the ordinary elementary school.

Desirable as is the introduction of a uniform system of terminology in grammar, it would be bought at too big a price if it were effected through the intervention of the English Board of Education and the Scotch Education Department. Uniformity is so dear to these bodies that they may seek to bludgeon teachers into acceptance of it by the usual method of threatening to stop supplies. The reform movement in this instance, as in every other educational advance, originated with the teachers themselves, and the completion of it may safely be left in their hands.

By J. C. NESFIELD, M.A.

IN a letter of March 27th regarding the "Recommendations of the Joint Committee on Grammatical Terminology," the Editors have invited my attention to an article by Prof. Sonnenschein which appears in the April issue of *THE SCHOOL WORLD*, and have asked me to give my opinion on two questions suggested by this article, viz.: (1) whether "these recommendations represent the final views of *all* the associations responsible for them, or whether they are merely tentative," and (2) whether "they have been found useful and practicable in the schools in which the attempt has been made to adopt them."

As regards the first question, it seems to me that the recommendations should be regarded as tentative rather than final, inasmuch as they do not represent the final views of *all* the associations responsible for them. The exception to which I refer is the English Association, one of the eight enumerated in Prof. Sonnenschein's list. This association, which, as cus-

todian of English studies for the British nation, or (to speak more correctly) for the British Empire, is or ought to be more authoritative than any other, has never yet recorded its final opinion or decision on the recommendations contained in the Joint Committee's scheme. It appointed a sub-committee to examine the scheme in detail. I was a member of this sub-committee, and I attended all the meetings. There were many points that we accepted, some that we did not agree to, and some on which we were not agreed amongst ourselves. A report of these proceedings was duly sent to the English Association, and published in their Bulletin, No. 15, of October, 1911; but nothing came of it. No notice was taken of it either by the Joint Committee or by the English Association; for before it reached the association named, the Joint Committee had drawn up what it intended to be the final exposition of its own views and recommendations, and had caused it to be published in pamphlet form by Murray (price 6d.). There the matter rests. It will thus be seen that the public has had no means of knowing what authority is to be attached to the Joint Committee's recommendations beyond that of the committee which has published them; and I do not know myself.

Regarding the second question, as I am not now connected with any school in England, I am unable to say from personal knowledge how far the recommendations of the Joint Committee have proved to be useful or practicable when brought to the test of experience. But I am acquainted with one headmaster who told me that he had found much difficulty in making the pupils understand the applicability of Latin cases to English nouns, this being one of the innovations proposed by the Joint Committee for the reform of English grammar. Prof. Sonnenschein (in the article published in your April issue) remarks that "it would be well if writers would follow the example of Mr. West and Mr. Rose in stating precisely at what points they disagree with the committee's recommendations." If he desires to know what my opinion is, he need not be in any doubt. He will find certain points of disagreement stated and discussed in a pamphlet of sixteen pages which has been, or will be, bound up with three different textbooks of which I am the author (viz., "Outline of English Grammar," "Manual of English Grammar and Composition," and "Modern English Grammar"), and in the same pamphlet he will find a few notes by the late Prof. Skeat, who on each of the points discussed by me has expressed his dissent from the committee's views in very emphatic terms. I am authorised by the publishers of my books (Macmillan and Co., St. Martin's Street, London, W.C.) to announce in this place that they are willing to supply a copy of this pamphlet to any headmaster who applies for one.

Without repeating what I have urged in that pamphlet, I may here state that the committee's scheme appears to me to be open to two main objections: (a) It makes assertions that are untrue or misleading; (b) it renders the study of English grammar more difficult than it has been hitherto.

(a) It says, for example, that "his," the possessive

or genitive case of "he," is in certain contexts not a possessive case, which everyone knows it to be, but an adjective, pure and simple. It says that "its" (formed on the analogy of "his") is not a pronoun in any context, but only an adjective. It says that "my" is an adjective and "mine" a pronoun; whereas everyone knows that "my" is the same word as "mine" or A.S. *min*, except that the final consonant has been cut off for phonetic purposes. "My" is declared to be an adjective in English, because *meus* is an adjective in Latin; but where is the Latin adjective answering to "his"? Everyone knows that there is no adjective in Latin answering to *illius*. Here, then, the alleged analogy of Latin fails.

The committee's scheme asserts that the case following a preposition is always to be called an accusative, because an accusative is used after prepositions in Vulgar Latin and in Byzantine Greek; whereas everyone knows that in A.S. prepositions might be followed by a dative or by a genitive, but seldom by an accusative. It adds a vocative case to the declension of English nouns, because there is a vocative in Latin; whereas everyone knows that English nouns never had, and never will have, a vocative. It says that there is scarcely any real distinction in English between verbs transitive and verbs intransitive, but that the difference is really one of use,—forgetting the fact that in English, as in other languages, there are some verbs, such as "sleep," which never can be anything but intransitive, and that there is a class of verbs which are causal or transitive in one form, as "fell," and intransitive in another, as "fall." Between "this" or "that" as a pronoun and "this" or "that" as an adjective it makes a distinction which is no distinction at all,—a distinction without a difference. It asserts that verbs like "lie," "love," which denote a state as distinct from an act, have as a rule no continuous forms of tense; whereas it is a matter of common experience that such verbs can be used in the continuous forms as much as any other verbs. It gives new names to tenses, such as "future in the past," "future perfect in the past," which sound self-contradictory, are quite unnecessary, and will certainly puzzle the student. It places under a ban the word "complement," which is used by all authorities that I have seen on the teaching of English, is indispensable as a heading for one of the columns in the analysis of sentences, and expresses exactly what it is intended to express, namely, "something which fills up a gap." It places under a ban the word "possessive" as a designation for one of our cases, and then, by a strange inconsistency, uses it in reference to "mine," "thine," &c., which it declares to be "possessive pronouns" (i.e., pronouns in the possessive case), and not possessive adjectives. It declares that the term "compound" as applied to sentences is "ambiguous," whereas there is no ambiguity in it whatever, and the term has been used by all English grammarians up to date, who must have known what they were about. It says that the past historic, i.e., the ordinary past tense, as "he loved," can also be used as a past continuous, as if it were equivalent to "he was loving," an assertion which can only tend to produce confusion in the minds of students regard-

ing the normal uses of these tenses, and is not borne out either by the analogy of Latin or by common experience. It deprecates the distinguishing of nouns into abstract and concrete, proper and common, but suggests nothing better as a substitute.

(b) The second objection, namely, that the committee's scheme, if it is adopted, will make the teaching of English more difficult than it has ever been before for the generality of students, is more serious even than the previous one described under (a). Grammar, I hold, is of no use at all except as an aid to correctness of composition, oral and written. If it is of no use for this purpose, by all means give it up and have nothing more to do with it; for composition, after all, is the only end to be kept in view. I am afraid, however, that some study of grammar and idiom is indispensable as a guide to accuracy; and this is admitted or rather enjoined by the Board of Education among the "Suggestions" published in 1912 for the teaching of English in public elementary schools. "A child should know," says the Board, "the functions of the principal parts of speech and the rules on which the construction of a sentence is based, if he is to express his own meaning correctly and to ascertain with accuracy the meaning of what has been written by others." Assuming, then, that a grammatical system of some kind is necessary as a foundation, the simpler it can be made the better, so long as simplicity is not carried so far as to involve a sacrifice of the end for which grammar is taught or studied. Most students will certainly be unable to say when a noun is in the dative case or when it is in the accusative; and yet the Joint Committee on Grammatical Terminology has made this use of Latin cases the main item among the reforms, so-called, which it desires to introduce. I have discussed all this in the pamphlet alluded to above; but I may mention in this place that my view of the matter is most cordially endorsed by the late Prof. Skeat, and is accidentally and unintentionally confirmed by Sir James Murray in the Oxford Dictionary, from which, however, I have no space here to quote any extracts.

A few words on the analysis of sentences, and I will conclude. The analysis of sentences is neither grammar nor composition, but logic, *i. e.*, logic applied to grammar. To composition it has no application at all, and for this purpose is of no use whatever. It is of some use as a logical post-grammatical exercise, in so far as it shows how a clause may in different contexts do the work of a noun, an adjective, or an adverb. If the study of logic can be of any use (as I believe it can), then the analysis of sentences may be of some use also; for it is based on logic, and begins, as logic does, by dividing a sentence into subject and predicate. But I would much rather see the analysis of sentences abandoned altogether than made an instrument of torture, as it will be to a large class of students of moderate ability if for the well-established and easily intelligible term "compound" we are to accept the committee's substitute, "double or multiple," together with the formidable, or, as Prof. Skeat calls it, "horrible," array of technical terms—"double sentence," "double subject," "double predicate," "multiple predicate," "double verb," "double

predicative adjective," "multiple object,"—all this artillery because the word "compound" is declared to be "ambiguous," when there is nothing ambiguous about it. If this is the way in which the analysis of sentences is to be treated, I give my vote for having it exterminated altogether from the teaching of English.

By FRANK RITCHIE, M.A.

THERE is probably no question in English grammar on which there is a greater variety of opinion, and which calls more imperatively for some authoritative pronouncement, than this: "What is a pronoun, and how are pronouns to be distinguished from adjectives?" There is a fairly general agreement that a pronoun may be described as "a word used instead of a noun," and although it must be admitted that this definition is not altogether satisfactory (*e. g.*, as applied to the interrogatives), yet it does contain the root of the matter; it indicates the essential mark of the pronoun, and the most typical pronouns, "he," "she," "they," &c., are correctly described by it.

But though most grammarians offer this as the definition (or as part of the definition) of a pronoun, the majority of them straightway ignore it in practice. The variety in the lists of pronouns given in different grammars is absolutely bewildering. A large number, perhaps a majority, describe as pronouns such words as "some," "any," "each," "every," "either," &c., and some even include "all," "many," "few," when used without a noun. The inclusion of such words among pronouns is unnecessary and unjustifiable. A very little consideration will show that they are *not substitutes*, and that, if the omission of the noun qualified converts an adjective into a pronoun, then such words as "rich," "poor," "high," "low," must also be classed as pronouns where they are used without a noun. For example, "Those are fine peaches. I will take *some*." Here the word "some" does *not* stand for "peaches," but for "some peaches"; in fact, the noun is omitted, and "some" is an adjective of quantity. Again, if "some" in the above sentence is a pronoun, it is clear that "two," "three," "four," and, in fact, the whole series of cardinal numbers, must also be pronouns, and the list of pronouns is swelled to infinity.

The Terminology Committee has not attempted to define "pronoun," but one of its recommendations gives some support to the dangerous doctrine referred to above—the doctrine, namely, that a word which may be used as an adjective becomes a pronoun if the noun qualified is omitted. The recommendation, § XVII., runs thus: "That English 'this' and 'that,' if used without a noun, be called demonstrative pronouns." Now there are, of course, instances where "this" and "that" are undoubtedly pronouns. Thus, "The tower of St. Mark's is higher than that of St. Luke's." Here "that" stands for "the tower," which can be substituted without disturbance to the sentence.

So, too, sometimes, when "this" and "that" = "the latter" and "the former."

"Two principles in human nature reign:  
Self-love to urge and reason to restrain;  
Nor *this* a good, nor *that* a bad we call."



But in such a sentence as "This ball is larger than *that*," the word "that" is not a substitute and cannot be replaced by "ball," though "ball" can be added without disturbance to the sentence. Again, if in the last example "that" is a pronoun, then "white" must be a pronoun in the sentence (exactly parallel), "The red ball is larger than the *white*."

The confusion which prevails with regard to this question may probably be partly explained thus: A pronoun admittedly performs the function of a noun, and by a deplorably illogical process it seems to be assumed that this is a convertible proposition, and that all words performing the function of a noun must be pronouns.

It is, of course, probable that in making the recommendations referred to above, the Terminology Committee had in view the French pronouns and adjective corresponding to the English "this" and "that," but it is at least doubtful whether an appearance of uniformity is not dearly purchased when it involves the adoption of a principle that leads to such disastrous confusion in English.

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THE report of the Committee on Grammatical Terminology is without doubt a useful and timely piece of work. Whether it will itself prove final or only the forerunner of other similar attempts, until some more or less final result is agreed upon, must depend upon experience, especially that of those who teach grammar in its early stages. Meantime, the subject was certainly one ripe for discussion, and the suggestions of the committee have strong support behind them.

The report aims at two objects: (1) to simplify grammatical terminology, and (2) to correlate the terminology of several languages. This has been done to some purpose. Grammatical functions which are similar should be represented by the same expression, and hairsplitting should be avoided. It is right therefore that unnecessary terms like "factitive and copulative verbs," and so on, should be abandoned, and that the same terms should be used in different languages for obviously the same thing.

One difficulty about teaching grammar is that many, if not most, of the terms used convey little if any meaning in themselves to children to whom they are introduced for the first time, and some remarks on the report may be offered from this point of view. Speaking generally, one may say that as few technical terms as possible should be used in teaching grammar, and this particularly holds good with beginners. If the order of languages learnt is assumed to be English, French, Latin, and, finally, German and Greek, a gradual development in the use of grammatical terms should be possible. The committee seems vaguely to have had this in mind when, for example, it says "that in English grammar the distinction of gender be not emphasised." In English grammatical gender can be ignored. French introduces masculine and feminine grammatical gender; Latin masculine, feminine, and neuter. But elsewhere there are suggestions for English grammar which would not have been made apart from the

other languages, and terms are employed for English which will be difficult for the beginner and might well be postponed.

For example, the past tense "wrote" is said to have a "double use—(1) as a past historic, e.g., 'on his arrival he wrote to me,' and (2) as a past continuous, marking the action as *going on* or *habitual* in the past, e.g., 'He wrote while I read,' 'Milton wrote Latin as well as English verse.'" The distinction is arbitrary, for in the first two sentences alike the writing may have lasted less than a minute or an hour or longer, and, on the other hand, writing on his arrival may have been habitual or have lasted some time. Besides, the regular past continuous in English is "he was writing," and the regular past habitual is "he used to write." Again, when a pupil has learnt to analyse a sentence into subject, predicate, and object, the objective case (apart from a limited use of the possessive) seems adequate as an oblique case for English and French. The new facts of case belonging to Latin, Greek, and German can be reserved without loss until he comes, if ever, to these languages. We are told, too, that prepositions always govern the accusative in English and French; but they do not do so in other languages.

Some remarks may also be offered from another point of view. The terminology of the committee will be final if convincing, but some of the terms proposed scarcely satisfy this condition, the exact word not having been hit upon. (1) Sentences are classified as (a) statements, (b) questions, (c) desires. "Desires" includes commands, requests, entreaties, prayers, wishes, and is used in a technical sense=expression of desire. It is, in fact, too technical, and it would be better to say commands and desires. (2) Why is the word "main" used in English instead of "principal" in expressions like "main sentence," "main verb," while "principal" is used in French, and the word contrasted with it is "subordinate"? "Principal" and "subordinate" seem the natural contrast (as in "principal officers," "subordinate officers"), whereas "main" suggests "branch" (as in "main line," "branch lines"). The committee explains that "subordinate" is not synonymous with "dependent," but what will a pupil of ten or eleven make of this? And why trouble about the terms "dependent" and "non-dependent" at all, when "principal" (or "main") and "subordinate" should be sufficient? (3) It is suggested that the two clauses of a conditional sentence should be called "if-clause" and "then-clause." The "if-clause" often has no "if," and the "then-clause" more often no "then." The terms should be "clause of supposition" and "clause of result." (4) The term "imperfect" is retained as an alternative to "past continuous" in French, Latin, and Greek. Should not "imperfect" be abandoned altogether, and this tense called "continuous" or "repeated past"?

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It is not the least merit of the recommendations that they have made it possible to teach in the English language lesson the fundamentals of the structure

of foreign languages usually taught in schools. They have not only given us a terminology common to many languages, but placed the teaching of English grammar upon a broader basis. This wider outlook is of great importance and of far-reaching consequences. Already the teaching of phonetics and of free composition has been referred by the foreign language master to the English master. The day is not far distant when the mother-tongue will rightly be made the basis of all language teaching.

Hitherto much time has been spent, not in teaching the foreign language, but in teaching the facts of grammar which had either been omitted or otherwise explained in the English class-room. The function of nouns, for instance, may have been fully dealt with in the English lesson, but the teacher of German had to do the same work over again to account for the difference in terminology. This was the procedure also as to the connection between the possessive case in English and the genitive in German; of the possessive pronouns "my," "thy," &c., and the possessive adjectives *mein*, *dein*, &c.; of the regular and irregular verbs in English and the strong and weak verbs in German.

Most schools striving for uniformity on the basis of the recommendations must be passing through a period of transition on account of the obvious obstacles to the immediate adoption of the new terms. As in the case of phonetics, it will require much argument to persuade the English master to change his terminology and point of view in order to prepare the way for the work of the foreign language class-room. There is also the difficulty of the text-book. Unfortunately the whole apparatus of language teaching cannot be swept away at one stroke, even if suitable text-books were found to replace the old.

Is there some guiding principle for the attitude of present and future writers of school books towards the recommendations? As uniformity and simplicity are of greatest value in the initial stages of language study, it seems to me that grammars for the lower forms should employ the terminology of the committee *in toto*. Even if writers disagree with the recommendations, the latter should be adopted for the sake of uniformity. In writing text-books for higher forms a different principle might be adopted. While giving general adherence to the recommendations, and while making them the starting point for further grammatical study, authors should, at this stage, be at liberty "to go out of bounds" in the cause of grammatical science. This will constitute the supreme test for the fitness of the recommendations to live.

Are we to regard the recommendations as tentative? This must be so if we are to accept the principles set forth above. In one respect the report seems to require immediate revision. I refer to the German equivalents of the English terms. In the report *Nomen* is recommended instead of *Substantiv*, yet in § VIII. we find *Substantivsatz* given for noun clause. Is not *Numeral*, plural *Numerale*, a new word? It is not found in "Duden," and in the Vienna report *Numerale*, plural *Numeralien*, is given. Most strange, also, is the term *zusammengesetzter Satz* for complex sentence. Is not *zusammengesetzter Satz* a general

name for the complex *and* the old compound? The following is the usual statement in German grammars: "Man unterscheidet folgende zwei Arten zusammengesetzter Sätze: (1) Satzverbindungen, (2) Satzgefüge." As *Satzverbindung* has been replaced by the fruitful idea underlying *Doppelsatz* and *vielfacher Satz*, it only remained to use *Satzgefüge* for complex sentence, as the Vienna report does. Further, it is astonishing to find that the process of simplifying has given us *beordnend* for *koordinierend*, and *unterordnend* for *subordinierend*. Mere consistency in the preference given to Latin terms should have secured for us the second alternative in each case. The Vienna report does so.

From the purely national point of view, finality cannot be claimed for these recommendations. Changes and additions will become necessary when the test of experience in the class-room has been satisfactorily applied. May we not also profit from the experience of other countries which, as Prof. Sonnenschein has pointed out, have been engaged in reforming their terminology? For example, the terms "noun-clause," "adjective-clause," &c., might well be abandoned in favour of "subject-clause," "object-clause," "attribute-clause," &c., in accordance with the Vienna and French reports. This does not imply that we should aim at international uniformity. But we should be insular indeed if we lightly brushed aside their recommendations.

Our attitude, I take it, should be that of the members of the International Phonetic Association towards their symbols. There it is freely admitted that some of the symbols might be improved, and members are invited to suggest such alterations and improvements as they may think desirable. But none are definitely admitted without careful consideration and the vote of a majority of the council.

## TRANSFER OF CHILDREN FROM THE PRIMARY TO THE SECONDARY SCHOOLS.<sup>1</sup>

By F. W. S. GLADWIN.

Member of the Executive of the National Union of Teachers.

It is generally recognised that far-reaching educational reforms are essential in both the primary and secondary schools, including the establishment of a proper system of co-ordination of curricula. Desirable as these reforms are, we direct your attention to the question, which seems to us of far greater importance—viz., who should actually be transferred from the primary school to the secondary school. A more correct attitude, then, for educationists to take up would be to discover what pupils ought to be transferred from the primary schools for "secondary" education, and then demand that suitable types of schools should be provided.

In some respects the title of this paper assumes what there is not; for there is no proper transference of primary pupils. Our educational horizon has been circumscribed by tradition and expediency, and we

<sup>1</sup> From a paper read at the Weston-super-Mare Conference of the National Union of Teachers, March, 1913.

have looked entirely at the secondary school as a likely means for securing good appointments for "bright" pupils, crammed or academically fitted to pass certain examinations. If we recall how entrance to the secondary school is generally secured, we realise that the great majority is admitted as "fee-payers" and a smaller number as "free-placers" or scholarship holders. Yes, generally speaking, it is much easier for a paying pupil without brains to be admitted to a secondary school than for a primary pupil with brains to secure a scholarship; and the argument for the restriction of scholarships to the "bright" pupil from the elementary school is becoming tiresome. If the same restriction were made for the son or daughter of wealthy parents we would be silent.

Let us consider for a moment the following statistics, which indicate the extent of the transference of pupils from the elementary schools to the secondary schools. There are 6,111,797 children in the public elementary schools, whilst those in the secondary schools, aided by Government grants, amount to 166,744. In certified efficient schools we find 18,646 pupils, which makes a grand total of 185,390 receiving secondary education. Of this number 100,838 have formerly been in elementary schools. Fees are paid by 132,271 pupils, and there are 53,119 scholarship holders. Only 5 per cent. of the children leaving the elementary schools subsequently attend a secondary school. This low percentage must be considered with the fact that about 600,000 children leave the elementary schools each year. Then, taking the computation of Prof. M. E. Sadler, not more than *one* out of every *three* receives any further systematic education. In other words, a vast army of 400,000 children is yearly turned away from any direct educational force at the most critical period of their career, and reviewing such as these one educationist aptly puts it: "Yet those who fail to receive such care are, broadly speaking, those who need it most." Any system to be considered satisfactory must provide adequately for the transfer of the majority of these to "secondary" influences. Even if some of these were to attend continuation schools, organised under ideal conditions, then the problem to be solved remains one of very great magnitude and importance.

During the past decade it has been established and accepted, on one hand, that it is an utter absurdity to consider a child's education as complete at the age of about fourteen, yet on the other hand it is remarkable how insignificant have been the educational experiments concerning the important period from twelve to seventeen, and how scanty, too, is the literature thereon. In these all-important years, the powers of reasoning attain their maximum vitality, and we claim that it is the duty of the nation to see that not one of the 400,000 leaving our ranks yearly should be allowed to drift away from direct educational influences.

The majority of educationists who have written or spoken on secondary and technical education has assumed that there must be a scholarship system of some kind or other, the purpose of which should be to select only those of special ability to receive the opportunity of continuing their education. These

educationists have led us astray, and their bedrock, that only pupils qualified by natural aptitude can render valuable service to the community, must be quickly combated. Their contention reveals a narrow conception of education, and based on such we are not surprised that the multifarious scholarship devices have proved utterly futile to force a homogeneous national scheme of education.

The competitive examinations for scholarships have always loomed in front of us as a refined species of gambling. Many an elementary scholar has been prevented from continuing his education by the accident of the date of birth. Being born a day too late may shut the door to the secondary school for ever. Further, the existing method of awarding scholarships as prizes seeks the precocious child, but neglects the truth that brilliance in a child may be followed by adult mediocrity. It ignores, also, the psychological fact that children develop at various rates and at different ages. In the interest of the nation we believe that each boy and girl should be educated just in the manner he or she requires. It is almost certain that from the more slowly developing intellects of "the 95 per cent." there may be produced as good adults as from the fortunate few now attending the secondary schools. The first educational advance will come when it is generally recognised that all children attain a special period, which demands that we should transfer from the primary influence not only the children set apart for the secondary, technical, or higher elementary schools, but those also who are mentally unprepared for further education—that is, if we examine them according to the requirements of the existing types of secondary schools. To amplify this, we consider that there are two periods in a child's life—one, the primary stage, when he should be taught in a primary school, and the other when he is entering on the stage preparatory to adolescent development, necessitating transfer to another type of school. Too much fixity must not be put on the age when children ought to be transferred, and "about twelve" must pass away for some period more elastic, and more in accordance with actual physical and mental development. To obtain the best out of our children demands greater educational foresight, and we need an added impetus to compel us to establish new types of schools. The term "secondary" should be applied to these new types of schools, and to the existing higher elementary schools, equally as well as to the existing secondary schools.

There should be sufficient school accommodation provided for every child leaving the elementary school, in order that no difficulties should be presented to children fit to proceed from one to the other. Transference should be as natural as it is from the infant department to the boys' and girls' departments in the public elementary schools. Much remains to be accomplished, for the comparatively few scholarships now awarded are insufficient to break through the barrier that prevents the open entrance to the secondary school. In actual practical working, the primary, secondary, and higher systems appear as totally separate compartments, instead of essential parts of one homogeneous whole. Com-

mencing from a blurred conception of education, we have not seen the importance of a natural movement onwards of pupils from one class of schools to the other, and instead we perceive around us chaos and the results of waste of money.

A competitor entering for a scholarship appears too much like a soldier stimulated to action at the point of the bayonet. And when the scholarship is attained, where does it lead? We all know—to overcrowd the literary, clerical, and commercial callings. We require open entrance to the proper type of school leading in the right direction. It is worse than useless to transfer children, unless there are created these new types of schools, which, for the sake of illustration, may be classed as those having (1) a trade, industrial and scientific tendency; (2) a commercial tendency; (3) a classical and literary tendency; and (4) an agricultural tendency. These are not mentioned with any idea of completeness. Some educationists advocate that all types of schools should exist in one block of buildings; but care must be taken not to provide unmanageable schools.

If it is agreed that in the national interest all sound children should receive secondary education, then it follows, as the night the day, that when the period in development arrives such ought to be transferred onwards from the primary school.

The Trade Union Congress has adopted a resolution on many occasions in favour of free compulsory secondary education; and this policy assumes that scholars should be transferred to suitable secondary schools, and, further, that they should be enabled to remain there until such age as the university course begins. The National Union of Teachers has declared itself in favour of free secondary education in all schools in receipt of Government grants, with maintenance scholarships, to assist children of poor parents to avail themselves of secondary education.

It is apparent, even to the casual observer, that the advance of free secondary education is passing through similar phases as did that of free elementary education pass through, less than three decades ago. Secondary education is the complement of elementary education, and just as the greater progress was made after the latter became compulsory, so we think that no satisfactory solution will be found until secondary education is also made compulsory.

In short, the natural transference of pupils from the primary school practically assumes the establishment of compulsory secondary and technical education, and there will be no hesitancy in the adoption of a system running parallel to elementary education when we extend our educational horizon, and understand that it is the duty of society to provide such educational opportunities as will carry its young folk forward into their future work, whether this be industrial, commercial, or professional. Germany, Switzerland, and Denmark realise that whatever tends to improve the education of the people operates also towards the nation's security and welfare, and we shall be on an equality when we, too, assimilate the truth that England will become, undoubtedly, a better nation if every boy and girl is transferred to a suitable secondary or technical school for three or four

years. Therefore we advocate, as the only permanent solution, the establishment of a co-ordinated system, by which every sound child can receive the advantage of a secondary or technical education, supported by adequate maintenance bursaries for those children coming from the homes of parents in receipt of small wages and incomes. Such a scheme means a large expenditure of money. We are, however, convinced that new developments are imperative, because they are socially expedient and profitable to the community.

### RURAL EDUCATION AND THE ELEMENTARY SCHOOL.

A SMALL Bill which deserves the earnest attention of everyone who has the welfare of English education at heart has recently been introduced into the House of Commons. It is presented by Mr. Jesse Collings, and is entitled, "A Bill to Provide Agricultural Education and Nature Study in Public Elementary Schools." The Bill is designed to enable local education authorities to give instruction in nature-study, fruit, flower, and vegetable growing, poultry- and bee-keeping, budding, pruning and grafting, cow- and pig-keeping, milking, rotation of garden crops, nature and properties of soils, use of manures, knowledge and choice of seeds, structure, life, and food of plants, action of birds and insects on crops, choice and use of simple tools, packing fruit, vegetables, and other produce for market, and weather observations, and to provide such school gardens, allotments of land, buildings, workshops, tools and appurtenances, books, specimens of animals, birds, insects, minerals, plants, seeds, and other objects as may be necessary. A quarter of the cost is to be met by the local education authority, and three-quarters by the Board of Education, and it is laid down that "the Board of Education shall make such alterations in the code of regulations as may be necessary to secure that the subjects specified in this Act shall be subjects required to be taught in all public elementary schools situate within the area of rural districts as defined by section 21 of the Local Government Act, 1894, and of semi-rural districts as defined by section 9 of the Public Health Act, 1875." Thus, if this Bill becomes law, rural education will presumably be revolutionised by a stroke of the pen, but the question may be asked: Is the country prepared for this sudden change? And again: Is the proposed alteration really for the good of the country as a whole?

It seems the fashion nowadays for well-meaning legislators to endeavour to regenerate their constituents in a moment by force, but it is open to the gravest doubt whether this method will not in this case really do more harm than good to the cause it is intended to benefit. "Hasten slowly" is a good motto. Rural education in this country is doubtless far removed from the ideal, but it must not be forgotten that every child who happens to live in a rural district will not be employed on the land, nor will the technical knowledge of agriculture even appeal to the majority of such. The curriculum of each school requires, for educational purpose, to be

organised on a plan which is in agreement with its surroundings and circumstances, but this Bill would appear to aim at forcing all rural schools into one (agricultural) mould, and thus substitute one evil for another. The whole of the objects of the promoters can be attained by an alteration of the regulations of the Board of Education, designed to give to sympathetic inspectors and teachers who possess the requisite experience and indispensable scientific and practical technical knowledge the freedom to sanction and arrange the necessary curriculum in any school wherever it is found possible and desirable to do so.

Given the right kind of enthusiasm, knowledge, and liberty, the rest will follow in due course, and that without unduly increasing the cost. Indeed, in many cases, the change can be made without any increase in cost at all. Unfortunately, the idea of making alterations in the existing order of things without increasing the cost seems almost to have been abandoned in these days, when the public purse is regarded by those who rule over us as inexhaustible. It will doubtless strike many that it will be a futile waste of money to attempt to turn every rural and semi-rural school into a miniature agricultural college, and a waste of effort to attempt to reorganise such schools at all before teachers of the right stamp have been trained for the new work which will be required of them. The alteration desired by the promoters of the Bill is steadily being made, and attempts to hasten the pace unduly can but result in disaster.

### HISTORY AND CURRENT EVENTS.

WHILE our newspapers are almost full of details concerning things that will not matter a year hence, they manage to insert notices of events of "long ago." Folk are celebrating centenaries of such various events as the conclusion of the last war between Great-Britain-and-Ireland and the United States of America, the triumph of Germany over Napoleon, and the birth of the missionary-traveller Livingstone. Our Russian friends are going back still farther in their memories, and are celebrating the three hundredth anniversary of the accession to the throne of the Romanoffs, the dynasty still in possession of the Tsardom. The war of 1812-13 between Great Britain and "America" looms larger the other side of the Atlantic than in our text-books. They regard it there as a "second war of independence," and can tell of American victories in the course of the struggle about which our pupils are generally ignorant. Ideas and practices now long out of date supplied the causes for that brief but important struggle, and it had its influence on the size of the Brito-Irish share in the "Hundred Days" of 1815. The subject should be studied in American text-books as well as in our own if we are to teach the story correctly.

WE English are apt to date the downfall of Napoleon in 1815, because our share in the land fighting which ended in his final overthrow took place largely in that year. We regard 1813 as merely the end of Wellington's campaign in "the Peninsula," and note merely in passing that that soldier's entry into south

France coincided with other events which helped to make that five years' war a success. On the other hand, our German friends regard 1813 as their great year against the oppressor. When in the autumn and winter of 1812 he retreated from Moscow, the Prussians, who had until then been preparing only in secret, felt their chance had come, and when Yorck risked his head, as he said, by revolting without waiting for royal leave, it was the signal for all Germany, except Austria, to rise. Germans will never forget the tremendous battles of that year round Leipzig, and the steady progress westward which ended at last in the entry of the victorious troops into Paris. The only event with which we are familiar that can be compared with it is the fall of Babylon, in 538 B.C., as it appeared to exiled Israel.

HISTORY never stands still. We are hurried on at what seems to be a breathless pace from one series of world-events to another, and while the nations were reducing Napoleon and France to the *status quo ante*, the child was born who was to interest Europe in Africa as something more than a field for geographical exploration in which the great problem was the discovery of the sources of the Nile. Some of us are old enough to remember at least the later period of Livingstone's activity, and to have eagerly read books about the missionary who opened up new "fields" rather than developed old ones, who went through and through Africa without fighting the natives, and left his "mantle" to Stanley. He in turn discovered the Congo, and handed over its enormous basin to the civilising care of the King of the Belgians. (We must not follow the story of that sad experiment.) The development of Africa has been aided largely by the use of that piece of machinery which, in the years 1813-15, was being perfected by a young colliery manager in the north of England, called George Stephenson. Which are the most important events of 1813-15?

RUSSIANS have every reason to celebrate the accession of the house of Romanoff in the year 1613. Apart from their early history, when they were subject to Asiatic rulers, and were indeed largely Asiatic themselves—"Scratch a Russian, and you will find a Tartar," used to be a saying—they remember Ivan IV. (the "Terrible," as we generally translate his epithet), the contemporary of our Elizabeth, and after his death, in 1584, there were either weak Tsars or anarchy until Michael Romanoff in 1613 attained the throne. Since that year the family has maintained possession, but the succession has been often very irregular. The Tsars generally married German princesses, and there was thus a constant infusion of Western blood—Catharine II., for example, whose career is partly known to us because she took a part in the partitions of Poland, was the German wife of a Tsar (Peter III.) who was the son of a Danish father and Russian mother. How the Romanoffs, especially Peter I. (the "Great") and Catharine II., themselves only half-civilised, according to Western notions, dragooned the nation into higher ideas and practices, and how, during last century, they gradually entered into European politics, is a long and interesting story, though with its periods of dullness.

## ITEMS OF INTEREST.

## GENERAL.

THE long-expected report of the Royal Commission on University Education in London was issued as a Blue-book (Cd. 6717, price 2s.) on April 15th. We are unable to deal this month with the many valuable recommendations contained in the report, but may state here that a further income of £99,000 a year is needed to carry them out. From the point of view of the school, the most important recommendations are that the normal portal of entrance to the University should be a school examination, and that pupils in schools should not be admitted to University examinations. The Commissioners agree generally with the Consultative Committee of the Board of Education that, in order to secure the full advantages of secondary education, two school examinations should be established. The lower examination, taken by pupils about the age of sixteen, would test the possession of a broad general education; the higher, taken at about the age of eighteen, would test a general education carried further, together with specialisation in some direction.

THE lower examination would entitle the student to admission to the University, though the Commissioners recommend that the age of admission should not be lower than seventeen. The higher examination would entitle the student to be admitted at once to more advanced studies without passing an intermediate examination; but it would not shorten the normal University course of three years. The lower school examination, although admitting to the University, would not admit the student to the faculty of medicine until he had passed a preliminary science examination, while the higher school examination would admit to the faculty provided the subjects of physics, chemistry, and biology were included in the school examination. In this case the University course would be reduced from five and a half to four and a half years.

THE Commissioners hope that it may ultimately be possible to require the higher school examination from all students entering the University in the normal manner, and as first steps in this direction they recommend that the University should cease to admit pupils in schools to its own examinations, including that for matriculation, and that no student under seventeen years of age should be registered as matriculated. The University should retain some form of matriculation examination designed for students of the age of seventeen who are unable to enter through the normal avenue of the secondary school; and the Commissioners think that this examination might to some extent be differentiated for the several faculties.

LORD HALDANE attended a joint meeting of secondary-school and technical teachers in the Great Hall of the University of London on Saturday, March 20th. The headmaster of Eton, who presided over the large assembly, said that Lord Haldane's presence was the indication of the intention of the Government not to proceed without first taking counsel of the teaching profession. The presence of the headmaster of

Harrow and a letter from the headmaster of Winchester indicated that those who represented the larger public schools no longer felt it possible to stand aloof from the question of a pension scheme for secondary-school teachers. The first resolution, to which Canon Swallow, Mr. R. F. Cholmeley, and Mr. P. Coleman spoke, welcomed the announcement that the Government proposed to deal in the near future with the question of education, hoped that the State would leave to the schools all reasonable freedom in such matters as time-table, curriculum, and careful educational experiments, and urged an increase of salaries and the provision of an adequate pension scheme for teachers. Mr. Arthur Acland said that he had begun to hope at last that a national policy of education was in sight. Those interested in secondary education are very much afraid of State interference. What they want is lots of money, and as little red-tape as possible. The proper corrective to too much State interference is a united teaching profession, taking constant counsel with the Board of Education.

AFTER Mr. Rawlinson, Mr. Somerville, and Miss Lees had spoken on the subject of pensions, Lord Haldane said he was one of a band who are on a voyage of discovery, and want to know all they can before they commit themselves to details. It is plain that the secondary-school teachers are vastly underpaid, and, as a result, there is a threatened falling off in the number of teachers. We must not let secondary education be separated and isolated in the public mind from elementary education and from university education. A great step forward has been inaugurated in the shape of the Teachers' Registration Council. Lord Haldane pointed out that the establishment of a national system of education is largely a question of money, and to obtain this it is necessary to convince the public of the national importance of a complete system of education. Education is the greatest reform that can be taken in hand, and expenditure on education is productive expenditure which the nation is justified in making sacrifices to incur.

IN an important article on national education, in *The Nation* of April 12th, Lord Haldane writes of secondary education that, in dealing with it, the Board has been hampered by two confused ideas. One is that the State has no real cause to concern itself with secondary education. The other is that elementary and secondary education are not successive stages in one entire system, but are two different kinds of instruction meant for different social classes. The grants for secondary education are of a very limited character, and are not made under proper conditions. The present position of secondary education is the weakest point in our organisation. Advances to-day are scarcely practicable either in the direction of giving the elementary pupils an easy chance or of freeing the universities of work really suitable for secondary schools. In a satisfactory condition of things a secondary-school certificate based on a record there would be the means of a pupil's entrance to a university. Germany has concentrated her energies almost from the beginning on making the secondary school the pivot of her educational system.

THE Educational Supplement of *The Times* for April 1st contains a table showing the number of children in attendance at "efficient" secondary schools per 1,000 of the population. The calculations are based upon the populations of the counties as enumerated during the 1911 census, and the numbers of children in attendance on January 31st, 1912, from figures published by the Board of Education. A distinction is drawn between the total attendances and the attendances at schools under the control of local education authorities. The total attendances per 1,000 average, for England, 5: the lowest is 2.3, in Northamptonshire, and the two highest are Hertfordshire, 11.8, and Bedfordshire, 11.2. Only two other counties—Berkshire and Westmorland—have more than 9 per 1,000. In schools controlled by the local authorities, the numbers per 1,000 range from 0 in Westmorland, Rutland, and Holland (Lincoln), to a maximum of 4.6 in the Isle of Ely and Leicestershire respectively. In compiling the table the county boroughs are included in their respective administrative counties. It is pointed out, also, that in 1902 certain counties were well equipped with secondary schools, e.g., Westmorland, and that local authorities have not been obliged to undertake secondary education on that account.

MR. J. A. PEASE stated in the House of Commons on March 27th that there are 232 among the 1,057 secondary schools in England and Wales recognised as efficient during the school year 1909-10, in which boys and girls are taught together, either in all or in some of the forms of the school. There are in these 232 schools 32,764 pupils. Of these 232 schools two have been closed, three have become schools for boys and girls only, one has been split up into two separate schools (boys and girls respectively), and in one other boys and girls are now taught separately throughout. There are 262 schools among the 1,110 recognised as efficient for the current school year, in which boys and girls are taught together either in all or in some of the forms of the school, which have been placed on the grant-list since the year 1909-10. The increase is mainly attributable to the establishment of new schools in districts in which the small number of the inhabitants, the demands of proper school organisation, and financial necessities render it difficult to establish efficient secondary schools for boys and girls separately.

MR. PEASE'S annual statement as President of the Board of Education in the House of Commons on April 10th contained much of importance to secondary education. The number of pupils in receipt of free tuition in the 885 secondary schools receiving Government grants last year was 52,563, of whom 49,120 came up from the elementary schools. The inspectors are more than satisfied with the rule which threw open 25 per cent. of the places in the secondary schools to elementary-school children. The staffing of the secondary schools is one teacher to every 32.5, of the elementary schools one teacher to every 13.5. There are twenty training colleges, and their total output of trained teachers last year only reached forty men and 195 women. At the present moment there is no

accurate knowledge of the kind of education given in the 12,000 to 14,000 unrecognised secondary schools in the country. A sum has been placed at Mr. Pease's disposal for the superannuation of teachers in technical and secondary schools. This will apply to all teachers in secondary schools receiving Government grants so long as they are teaching in secondary schools. It will, however, not be possible to introduce in this session the Supplementary Bill in connection with the superannuation of teachers as has been anticipated.

THE Annual Report of the Board of Education has recently been issued, price 8½d. Not the least interesting part is the historical survey, in two divisions, (a) 1894-1902, (b) 1902-12, of the passage from the elementary to the secondary school. Roughly, three-fifths of the pupils in secondary schools have come from public elementary schools, rather more than half of them "free" and the rest "fee-paying." Usually the "free-placers" change school between the ages of eleven and twelve, though in some cases children of later development are awarded scholarships even up to the age of fourteen. The Board confines itself to a statement of sympathetic watchfulness regarding the forty-two central schools—nineteen with a commercial bias, sixteen with an industrial bias, and seven with a dual bias—which have been established in London and Manchester.

IN view of the present interest in the subject of local examinations and their multiplicity, the paper on examinations in the issue of the *Journal* of the Royal Society of Arts for March 28th is distinctly opportune. From it we gather that the College of Preceptors inaugurated the system, holding its first school examination at Nottingham in 1850, and its first examination at a local centre was conducted by means of papers sent from London in 1853. The Royal Society of Arts came next; one candidate was examined in March, 1854, sixty-two in 1856, and the first provincial examination was held at Huddersfield in 1857. The local committee system began in 1858. These two examining bodies have persisted without undue interference with each other since that time. The University Locals and the drawing examinations of the Science and Art Department were commenced about the same date, and the science examinations of the Government began in 1861. Overlapping caused the abandonment in 1870 of the examinations in science originally included in the scheme of the Society of Arts. In the early period successful candidates at the examinations of the society frequently obtained posts in the Civil Service as a reward for their success. Progress has been so continuous that the number of candidates examined by the society now reaches the total of about 28,000 annually, although the range of subjects has been reduced considerably during the half-century.

THE Secretary of the Admiralty announces that it has been decided to raise the limits of age of candidates for entry as naval cadets into Osborne. The limits at present are twelve years and eight months to thirteen years of age, and these limits will be retained for the next July examination (with entry into Royal Naval College, Osborne, in September, 1913).

For the December examination (with entry into Osborne in January, 1914) and for subsequent examinations the age limits will be thirteen years and four months to thirteen years and eight months. There will be, as at present, three examinations in each year—namely, in March, July, and December—and candidates must not be less than thirteen years and four months nor more than thirteen years and eight months of age on April 1st, August 1st, and December 1st of the same year. Candidates who were not chosen to attend, or were unsuccessful at the qualifying literary examination held in March, 1913, and candidates who may be similarly unsuccessful in July, 1913, may present themselves again as candidates under the revised age limits, but will require to be again medically examined, and to attend before the interview committee.

THE Preliminary Certificate Examination of the Board of Education is in a parlous condition. In 1908 19,500 candidates took part i. and 13,500 part ii. In 1912 the candidates were roughly one-fourth in number. The prime cause of this great decrease is undoubtedly the shortage of persons desirous of becoming elementary teachers; other causes, no doubt, are active, e.g., many would-be teachers take a "local" or "matriculation" examination, but the net effect remains: the profession of schoolmaster is not sufficiently attractive.

THE seventeenth annual conference of the Parents' National Educational Union will be held at Caxton Hall, Victoria Street, S.W., on May 5th-8th. Many papers will be submitted to the conference, including those on knowledge and learning and knowledge in its relation to national efficiency, by Mr. Stanley Leathes and Mr. J. L. Paton respectively. Season tickets, 3s. 6d., which admit to all meetings and receptions, and day tickets, 1s. 6d., may be obtained from Miss E. A. Parish, 26, Victoria Street, S.W.

THE Yorkshire Summer School of Geography, to be held at Whitby from August 4th to 23rd, aims at providing both theoretical and practical instruction in the methods of geography and at furnishing opportunities for the discussion and elucidation of problems in geographical teaching. Lectures will be given on all the geographical aspects of Yorkshire, as well as on meteorology and the teaching of geography. The fee is £3, and the numbers are to be limited to 200. The school is due to the co-operation of the Universities of Leeds and Sheffield with Armstrong College, Newcastle, the education committees of the three Ridings and of the county boroughs of Yorkshire. This year Leeds University is responsible for the organisation, and applications should be addressed to the secretary, Yorkshire Summer School of Geography, at that University.

THE Education Committee of the West Riding County Council proposes to hold a vacation course for all grades of teachers at Bingley Training College during August next. The course will extend over two or three weeks, according to the subjects taken, and is intended to provide opportunities of studying new methods of teaching. The subjects are:

Education (Prof. J. A. Green), history as a preparation for citizenship (Miss Burstall), practical arithmetic (Mr. J. R. Deeley), handwork (Miss K. Steel), organised games, rhythmic movements and dances (Miss M. Alexander Hughes), reading, including the art of story-telling (Mr. Arthur Burrell), teaching in infant schools (Miss L. L. Plaisted), domestic subjects (Miss G. E. Irons), physiology (Miss F. E. Relf), experimental science (Prof. A. Smithells), needlecraft (Miss A. Arthur), nature-study (Miss M. Simpson), physical instruction (Mr. H. P. Langkilde). Evening lectures will be given during the course; present arrangements include lectures by Miss H. M. Wodehouse, Mr. A. C. Benson, Mr. Arthur Burrell, and Prof. Karl Pearson. The fees are moderate, and West Riding teachers may obtain grants-in-aid and a grant for travelling expenses. Teachers who are interested should apply for a handbook to the County Hall, Wakefield.

IN the invitations to the Guildhall Conference on Diet and Hygiene in Public Secondary and Private Schools, held last May, the National Food Reform Association stated its intention of calling a further conference in the near future to consider the feeding of elementary-school children and those in institutions, both public and philanthropic. Such a conference, dealing, like its predecessor, with cookery and personal hygiene as well as diet, will be held at the Guildhall on June 30th and July 1st. The Rt. Hon. the Lord Mayor (Sir David Burnett) will attend to welcome the members. Further particulars will be announced in due course, and will be sent to anyone forwarding a stamped addressed envelope to the secretary, Schools Committee, 178, St. Stephen's House, Westminster.

CONSIDERABLE educational interest attaches to the exhibition of photographs in sepia and in colour of the Holy Land, to be held on May 13th-19th inclusive, at the St. George's Gallery, 108 New Bond Street. The series of pictures has been taken with the view of enabling students and teachers to build up in imagination systematically the geographical and scenic background in relation to which the Scripture story moves, and by the realisation of which the apprehension of its meaning can so often be facilitated and made more lively. Each picture is definitely located as regards position and direction, and the meaning still further elucidated by an orographical map of the regions concerned. The photographs are by Miss Sophie Nicholls, who was awarded the Frances Mary Buss Scholarship to assist her in carrying out the expedition of which they are part of the educational result.

THE report on the teaching of needlework in public elementary schools, recently issued by the Board of Education, is full of points of interest and importance. After a careful consideration of the document as a whole, one feels that the problem of "finance" is responsible for the worst evils exposed in the report. Needlework is "the only subject in the curriculum which is expected to be self-supporting." This is good, but if it brings corrupt methods in its train, it is deplorable. Good needlework and a highly satisfactory balance-sheet should go hand in hand, and



the "very small loss on needlework materials throughout the country" ought at least to be turned into a small gain. Every year would see some piece of apparatus supplied from the profits, and one sewing-machine would no longer seem an ideal almost impossible to realise. Nothing short of a balance on the right side every year will eradicate the evils that are keeping the subject back, and discouraging those who teach it.

WHAT is it that makes some teachers cut out and fix their children's work? The report tells us it is the "sale difficulty." They fear the child's unaided work will not sell. Again, why in some of the poorest districts are specimens worked to excess, and garments scarcely undertaken at all? We are told that it is because "material cut up for specimens has not got to be refunded." What a sordid thought! It is enough to make one say that every shilling spent must be refunded, and then perhaps these teachers would be forced to devise some new way of getting pieces for patching and darning. We are not at all convinced that even in the poorest districts the nature of the supply cannot be perfectly suited to the nature of the demand, and one would like to feel that the poorest mothers obtained the greatest benefit out of the school needlework.

THE Association of Women Clerks and Secretaries has convened a conference on the training of women clerks and secretaries, for May 22nd, at 8 p.m., at the London University. Miss Haldane, a member of the Royal Commission on the Civil Service, will preside. The subjects under discussion will be the kind of training and the preliminary education necessary; and the question of the inspection, by some responsible authority, of schools and institutions offering training in clerical work will be broached. Admission is by ticket, obtainable from the secretary to the association, at 12, Buckingham Street, Strand, London, W.C.

AN interesting experiment in open-air teaching is to be made this summer, from April to October, in the playgrounds of three London County Council schools in Bethnal Green. The class at each of the three schools will consist of children of approximately like ages and educational attainments, drawn from various contributory schools. The children will be selected chiefly on physical grounds. Assistant-teachers are to be placed in charge of the classes, and they are to be specially capable in regard to handicraft, nature-study, and physical science (including hygiene).

THE April number of *The Child* contains, among many articles of interest and value, contributions on ambidexterity, by Dr. H. Macnaughton-Jones; Kingswood School, Bath, by Mr. Frank Richards; the College for the Higher Education of the Blind, Worcester, by Mr. G. C. Brown.

A USEFUL summary of "The Making of Historical Fiction," by Mr. Ernest A. Baker, appeared in *T.P.'s Weekly* for April 11th. Many teachers who have charge of school libraries will find therein just those references and titles which will render them great assistance.

### SCOTTISH.

THE leaving-certificate examinations, towards which the whole educational world in Scotland may be said to move, have come and gone. This year several incidents of a somewhat unfortunate character have marked the examinations. The date selected for the tests coincided with the Easter holiday week of the great majority of schools, and pupils had to be brought back in the middle of their holidays to undergo their annual inquisition. Almost all responded to the call, but it is to be feared that the effects of the holiday spirit will be evident in many of the papers. Then a most extraordinary blunder crept into the second higher grade French paper. While the questions on the first paper were as intended, those on the second and third were the English questions that had been set two days before. The responsibility for this colossal blunder rests in the first place with the Stationery Office, but the chief examiner in each subject should be held responsible, not only for the final proofs, but for the actual papers distributed to the candidates. Unless some such arrangement is made the same printer's blunder may be repeated any time. It is satisfactory to find that the Department has come to the conclusion that it is neither necessary nor desirable to subject the pupils to a fresh examination in French. From a scrutiny of the material already in its hands it is convinced that a perfectly fair verdict on the pupils' attainments can be arrived at without any further tests. All doubtful cases can be investigated during the course of the oral examination. The examination questions were on the whole on sound lines, although there was evidence in several subjects of a return to a somewhat discredited style of questions.

THE Solicitor-General for Scotland, Mr. A. M. Anderson, K.C., in opening an exhibition of work in connection with the Edinburgh Continuation Classes, said that the exhibition was the largest and most varied of its kind ever brought together. Edinburgh School Board had been a pioneer in continuation classes, and the fruits of its labours were now beginning to be evident. Last year more than 11,000 students attended these classes, and for the last ten years the average attendance had been 93 per cent. The purpose of these classes was twofold—the continuation of general education and vocational training. The first was directed to the making of good citizens and intelligent workmen, and the second to the theoretical and practical instruction of young workmen. The best argument for the utility of the vocational side of these classes was to be found in the high quality of the work presented in so many different departments by the students.

THE ninth biennial Congress of the Scottish Class Teachers' Association was held this year in Dunfermline. The attendance was exceptionally large and representative of every district in Scotland. The president, Mr. Robert Hay, in an able and interesting address, said that the teacher who shut himself off from the public and social life of the community in which he served thereby became a poorer citizen and a less efficient teacher. Mr. J. M. Hogge, M.P., a

former student in Moray House Training College, in the course of an address on the overhauling of our education system, had some hard things to say of existing administrative conditions. The Secretary for Scotland, who was nominally responsible to Parliament for educational affairs, had a dozen other departments to supervise, and it was impossible for any man, no matter how able, to do anything like justice to all of them. Mr. Hogge suggested as a remedy the appointment of another official, a Parliamentary Under-Secretary, to take charge of education. Frankly, we do not approve the proposal. Education is already suffering from a plethora of officials. The real solution is to be found in the creation of an advisory council with which the permanent Secretary would take counsel before initiating any important modifications or alterations in the existing system. Resolutions were passed in favour of enlarged School Board areas, teacher inspectors, and smaller classes.

IN answer to a question in the House of Commons, the Secretary for Scotland announced that he hoped during the course of the session to introduce a Bill to give additional powers to School Boards to provide for the medical treatment of school children. The limited nature of the proposed measure is a disappointment to many, who hoped that advantage would be taken of the present occasion to remedy certain patent defects in the Education Act of 1908. The Government was probably anxious to improve upon that Act, but has been deterred by fear of the controversies that might gather round some of the suggested provisions.

FOR the first time for many years the Scottish Education Estimates for the new financial year show a decrease of £3,141 on those of the previous year. Annual grants for day schools are down as much as £16,714, while the fee grant is £5,462 less than formerly. Increased grants for continuation and secondary schools help to redress the balance, but the figures should bring home vividly to politicians and educationists the serious dimensions of the "trek" to the Colonies.

A SPECIAL general meeting of the Educational Institute of Scotland was called for March 22nd, in the High School, Edinburgh, on the requisition of 264 members, for the purpose of discussing (1) the position of the institute with reference to the National Insurance Act, and (2) the proposed campaign in favour of improved salaries. The proposed meeting proved a fiasco, as when the president called the roll it was found that only 120 out of the 200 delegates necessary to form a quorum had put in an appearance. The only course open to him was to declare that no meeting could be held.

#### IRISH.

It is possible that before these notes appear a definite statement will be made that Mr. Birrell's scheme for the additional annual grant of £40,000 to intermediate education has been so amended as to meet with general acceptance. At all events his replies on various occasions during the past month raise hopes that he is well on the way to overcome

the difficulties which have hitherto blocked the scheme, and, if so, the grant will be available during the present year.

THE annual meetings of the Irish Technical Instruction Association will be held on Wednesday, Thursday, and Friday, May 28th, 29th, and 30th, at Bangor, in co. Down. The following subjects will be discussed: Technical instruction in relation to industries; hygiene and home nursing as a section of technical instruction; co-operation between county and urban technical instruction committees; the apprenticeship scholarship scheme; account-keeping for farmers; domestic economy—the family budget; horticultural instruction in urban areas; rural science and school gardening; commercial instruction as now carried on in Ireland.

THE Department has issued the programme of the Irish Training School of Domestic Economy for the session 1913-14. The school is at St. Kevin's Park, Kilmacud, Stillorgan, co. Dublin, and is residential. The entrance examination is on June 11th and 12th, and the year's session commences on September 1st and lasts until the end of the following June.

UNIVERSITY COLLEGE, GALWAY, has published a small pamphlet of twenty-four pages detailing the regulations for admission of students and for scholarships and fees for the session 1913-14, and especial attention is directed to the change in the date of the examination for entrance scholarships, which will be held in July, and not, as formerly, in October. The college offers twelve entrance scholarships, four of £30 and eight of £25 each, in the faculties of arts, science, medicine, and engineering, and one scholarship of £25 in the faculty of law.

THE Chancellor of the Exchequer has offered to increase the annual income of University College, Galway, by £2,000, on condition that the county councils of Connaught contribute £1,500 a year. At a conference of the delegates of the Connaught county councils and of the representatives of those councils on the governing body of the college, it has been decided to accept the condition and to urge upon each county council to levy a rate *pro rata* to raise the £1,500 a year. A long statement was drawn up protesting against the different treatment of Galway and Cork, and expressing the view that the Treasury should have given £3,500 a year without conditions. At the same time it was very strongly urged that the province should accept the offer, as with the addition of £3,500 a year, the equipment of the college can be improved and its staff strengthened to such an extent that it will be in a position to give a thoroughly sound university training, to attract practically all the students of the province who intend to study for a university degree, and to pay close attention to the special agricultural and industrial problems of Connaught.

THE Congress of National Teachers held in Dublin at Easter was noteworthy for the scheme outlined by the president, Miss Mahon, for the reform of the National Board. By this scheme the board would consist of four sections, each of five members, *viz.*, representatives of the General Council of County

Councils, of the Associations of Managers of Schools, of the Teachers' Organisation, and five members nominated by the Government, all to hold office for three years. There would also be a director and assistant-director of education in place of the present resident commissioner. This scheme makes no provision for co-ordinating the different departments of education.

#### WELSH.

THE report of the Board of Education for the year 1911-12 has just been issued, and lays great stress on the development of manual work in Wales, especially **woodwork** and gardening, from which has resulted an increase of the "practical" element in much of the teaching of the schools. It is stated that the growth of the number of school gardens in the midland counties of Wales has been very rapid. "The addition of 'the more practical subjects' to the curriculum does not, when the teachers are competent, overburden the time-table or make the work more difficult for the children. On the contrary, it has been found that by the introduction of such subjects the school generally gains in happiness, the instruction in usefulness, and the individual children in intelligence. It has been found that gardening has a wide and well-marked influence on the children's minds—arousing their powers of observation and reasoning, and giving them a most valuable training in accuracy, alertness, and self-reliance, and that in many schools woodwork, amongst its other and more general advantages, has, in particular, improved the teaching of arithmetic."

EVEN still more enthusiastic are the further details. In some cases the woodwork has adapted itself to the old Welsh home industries of the locality, interest in which it is hoped to revive in this way. In a Merionethshire school, "the fashioning of domestic utensils in wood, once much practised in this neighbourhood, has been the subject of woodwork instruction, while in a Radnorshire school the children have in their practical work been taught to make, out of the hazels which abound in the district, baskets of a particular kind locally known as 'whiskets.'" The Board goes on to say that it is "glad to give sympathetic consideration to any experiments in this direction," if due care is given to the educational aspect of the work. Other details include cardboard work in making models of boats in a seaside village, where an effort has been made to teach the elements of navigation, "an experiment which might with advantage be followed elsewhere." We are told that there is a proposal before the Board to introduce bookbinding as the form of manual work in a Cardiganshire school.

OF more general interest is the account of a school at Brynaerau, near Carnarvon, "which shows the comparative ease" with which an open-air school can be provided for ordinary scholars. "The building, which faces due south on an open site 150 ft. above sea-level, with views of sea and mountains, is one-storied, and consists of three class-rooms, which can be used either as three large class-rooms, or can be divided so as to form three smaller rooms and a corridor. The south side of each class-room is formed

by a large bow-window. The window opens in the centre, and each of the two sections folds back completely. Thus practically the whole of this side of each class-room can be thrown open to the fresh air. On the north side are large sash windows, some of which are fitted with hoppers. Dormer windows are placed in the roof on the south side, for use when the class-rooms are divided from the corridor; effective cross-ventilation is thus secured. If desired, it is possible by means of folding wood and glass partitions to divide the south end of the rooms from the class-rooms proper, and to form a continuous open-air corridor running east and west. Games, physical exercises, or other lessons could be taught in this corridor, even in severe weather."

THE following are the numbers of adult teachers in the Welsh elementary schools, with the percentage of each grade to the total: Certificated, 6,410 (47.50 per cent.); uncertificated, 5,337 (39.55 per cent.); student teachers, 134 (0.99 per cent.); supplementary teachers, 1,614 (11.96 per cent.) The percentages for England and Wales are: Certificated teachers, 63.24 per cent.; uncertificated, 27.17 per cent.; student teachers, 1.12 per cent.; and supplementary teachers, 8.47 per cent.

THERE will be a Summer School at Aberystwyth in Geography from July 28th to August 16th, 1913. The object will be to assist teachers in the modern methods of teaching geography, with emphasis on the humanist aspect, and to give suggestions for detailed study in the geography and history of students' own districts. Prof. H. J. Fleure will lecture on human geography and on Wales and its borders; Prof. E. A. Lewis will lecture on civic history. Mr. W. E. Whitehouse will take a class in climatology and trade routes. Mr. E. S. Price will lecture on land forms and natural regions. Certificates will be granted to those students who attend regularly and work satisfactorily, and the certificate will specify the section of the course taken. The fee for the course is £2.

THERE will also be a Summer School at Aberystwyth, with the following subjects: Manual instruction, modelling, painting, kindergarten, pedagogy of handwork, needlework, rural science, agriculture, horticulture, nature-study, land surveying, physical training, and school games. At the University College of North Wales, Bangor, the Welsh Language Society will hold its Summer School, for the eleventh year, from August 11th to August 23rd. At the University College of South Wales, Cardiff, the Summer School will be held from August 4th to August 23rd, with classes in mining engineering, surveying (mine and land), mechanical engineering, electrical engineering, architecture, building construction, geology, experimental physics, and chemistry. At Bangor Normal College, July 26th to August 2nd, the North Wales Temperance Federation will hold a summer course. At Abergele and Barry County Schools manual work schools will be held in August (from the 5th to the 30th). Courses for elementary-school teachers will also be held in rural science and allied subjects at Madryn Castle Farm School, Pwllheli, for men, from July 29th to August 12th; for women, from August 15th to August 29th.

### OLD TESTAMENT TEXT-BOOKS.

(1) *The History of the People of Israel*. By M. Sarsan and M. A. Phillips. xv+356 pp. (Longmans.) 4s. 6d. net.

(2) *Old Testament History*. By A. R. Whitham. 430 pp. (Rivington.) 4s. 6d.

(3) *The Hebrew Prophets*. By Francis H. Woods and Francis E. Powell. 264 pp. (Clarendon Press.) 2s. 6d. net.

(4) *Notes on the Hebrew Prophets*. By G. Wynne-Edwards and K. H. McCutcheon. 128 pp. (Clarendon Press.) 2s. 6d. net; interleaved, 3s. net.

(5) *Ecclesiasticus*. By W. O. E. Oesterley. civ+367 pp. (Cambridge University Press.) 6s. net.

(6) *The Period of the Patriarchs*. By L. Isabel Smith. 163 pp. *The Period of the Exodus*. By S. Allen Warner. 179 pp. *The United Monarchy of the Hebrews*. By C. C. Graveson. 228 pp. (Headley Bros.) Each 1s. net; in cloth boards, 1s. 6d. net.

THE ladies who have collaborated in the preparation of "The History of the People of Israel in Pre-Christian Times" (1) have written an able and useful work. Dr. David, headmaster of Rugby, who writes a short introduction, says: "It produces the impression of a running commentary, linking book with book, narrative and prophecy and poetry, and tracing through stage after stage the process of God's purpose in the training of the race whom He had set in the world and yet called out of it." He particularly commends it for use in upper forms. The authors have availed themselves of the light of the latest criticism, and the general treatment may be gauged by a single quotation. Speaking of the end of the Patriarchal stage, the authors say: "By a favourite literary device our historian has put into the mouth of the dying Jacob a prophecy foreshadowing the history of the various tribes into which his race was to be divided when it once more settled in the land of promise. The figures of the ten brethren have throughout the narrative been vague and shadowy. In the stories of Abraham and Jacob and Joseph, though we readily attribute much to metaphor or legend or to the interpretation of a later age, we yet feel irresistibly the presence of real underlying personalities." The book contains several valuable tables, and an admirably compiled index, as well as a short bibliography and some maps.

Mr. Whitham's book (2) is an orderly and systematic summary of Old Testament history from the Creation to the time of Christ. More conservative and less literary than the work noticed above, it is a skilfully condensed, practical, and serviceable volume. A valuable feature is the incorporation of a considerable amount of the Old Testament text, whereby frequent reference to the Bible is saved. The later period of Jewish history immediately prior to Christ is dealt with adequately, and the books of the Apocrypha are handled in a refreshingly sympathetic way, though it seems strange to say "the weakness of Ecclesiasticus is undoubtedly the absence of the Messianic hope." The book of Ecclesiasticus is sententious, not historical. As Dr. Oesterley aptly puts it in the work noted later (5): "The character and object of Ecclesiasticus are such that references to the Messianic Hope other than incidental are not to be looked for." At the same time, Dr. Oesterley instances a clear Messianic reference in chapter xlvii. 22.

Messrs. Woods and Powell have now completed the last of their four volumes on the Hebrew prophets for English readers (3). This volume deals with Haggai, Zechariah, Malachi, Joel, Deutero-Zechariah, Jonah, and Daniel. The text is in the language of the Revised Version, printed in poetical form. Such headlines and annotations are added "as should enable

the average reader to understand this ancient literature as readily and easily as he understands, say, Wordsworth or Tennyson." The value of the work is greatly enhanced by a comprehensive index of prophetic teaching and a reference index to chapters and verses. These indexes are of the fullest and most painstaking character.

"Notes on the Hebrew Prophets" (4) is another example of the joint work of two ladies. It was written to provide the necessary notes for pupils studying the prophetic books. The text is not given. The authors claim to have found the use of the notes by the pupils a means of saving time and securing more accuracy. Young people compelled by misfortune to "study" such obscure books as Jeremiah and Ezekiel will certainly get assistance and relief from the lucid summaries and comments of this little volume.

Dr. Oesterley's work on Ecclesiasticus (5) is beyond praise. Six introductory chapters deal interestingly with the authorship and teaching of the book, and the remainder with the text, which is expounded in ample and lucid notes. This Apocryphal book is too little known. Those who know and love it will be grateful to Dr. Oesterley for presenting it in such attractive guise. Generally they will agree with him that so far as the piety of the writer is concerned Ecclesiasticus stands on a much higher plane than such canonical books as Esther and Ecclesiastes. They will also agree that Ben-Sira had a wonderful knowledge of human nature. "Whether it is upon the subject of behaviour at table, or concerning a man's treatment of a headstrong daughter, or about the need of keeping a guard over one's tongue, or with regard to the relationship between husband and wife, or concerning the folly of a fool, or the delights of a banquet, or whether he is dealing with self-control, borrowing, loose women, diet, slander, the miser, the spendthrift, the hypocrite, the parasite, keeping secrets, giving alms, standing surety, mourning for the dead, and a large variety of other topics—he has almost always something to say which for sound and robust common sense is of abiding value."

Last, but not least, of these Old Testament text-books are three handy volumes in the "Teachers and Taught" series (6). The charm of these volumes is their entertaining conversational style. They claim to be suitable for use in the day school, the Sunday school, and the home. The claim is well sustained in each of the three volumes. Bible truths are brought right home. The method is direct, concrete, and draws illustration from modern happenings. The writers, who certainly require a special gift for the purpose, are well selected, and their work is done admirably. The pictures, especially the reproductions from monuments, are excellent. Messrs. Headley are to be congratulated on these compact and virile productions.

### RECENT SCHOOL BOOKS AND APPARATUS.

#### Classics.

*Lingua Latina*. (1) *Primus Annus*. By W. L. Faine and C. L. Mainwaring. 138 pp. (Clarendon Press.) 2s. (2) *Decem Fabulae*. By W. L. Faine, C. L. Mainwaring, and E. Ryle. 94 pp. (Clarendon Press.) 1s. 6d.—These two books belong to the strictest sect of the new school, and are intended to show how Latin has been taught by the authors on the oral method, without the use of English. Once we are past the preface and the introduction no single English word appears. The "Primus Annus" has fifty-six lessons with *pensa* and an *ars gram-*

*matica* summing up the grammar covered—i.e., all the declensions of nouns and adjectives, pronouns, adverbs, comparison, numerals, prepositions, conjunctions, verbs, active and passive, indicative and imperative, and principal parts. The "Decem Fabulæ" are ten easy plays for learning and acting by boys and girls in their first year of learning Latin on the direct method. Their titles are: "Pyramus et Thisbe," "Ludus," "Medicus," "Horatius," "Circe," "Polyphemus," "Reditus Ulixis," "Troia Capta," "Theseus," "Verres." Both books mark all long quantities. The "Primus Annus" has a picture of the Villa Cornéliana, resembling the pictures used for teaching in modern languages.

*Fonolexica: Latin-English Pocket Dictionary.* By K. Feyerabend. xvi+408 pp. (Grevell.) 2s.—This is a very useful little book. It is impossible to test a dictionary properly except by use; but we have satisfied ourselves that this is accurate so far as it goes, and it contains a very large number of words; and we have used Mr. Feyerabend's Greek dictionary with contentment since it came out. They will not do for the serious student, but they will enable most people to find out the meaning of anything they are likely to meet. The introduction, on sounds, is very good indeed, except that there are a few signs of the author's Germanic origin. But we notice with surprise that, after carefully explaining the nature of the Latin accent, and its place, Mr. Feyerabend on p. xiv. accents *aequám, lætitiá, festós*, and so forth! He seems to have confused accent with the ictus of the verse, and Latin verse rhythm depends on the conflict of these two elements. "Remoted" (p. 1) is also a word we do not know. The print is good for its size.

#### History.

*The History Teacher's Magazine, January, February, March, 1913.* (Philadelphia, U.S.A.) 20 cents a copy.—The American *History Teacher's Magazine*, with these three numbers, commences the fourth year of its useful existence. The size of the page has been reduced slightly, and the illustration which formerly was so attractive a feature has disappeared, but otherwise the magazine retains its familiar characteristics. An interesting item in the January issue is a list of doctoral dissertations in history now in progress at the chief American universities. One is amazed to find that there are well above 300 of these, and when one looks through the titles one is impressed by the feeling that a prodigious amount of futile and unnecessary "research" is being done under the pressure of the passion for the doing of so-called original work. It is devoutly to be hoped that when the 300 diligent diggers into the refuse heaps of the past have obtained that goal of their ambitions, the doctor's degree, the majority of them will restore the means of their elevation to the proper oblivion whence it came. The February number contains a useful discussion concerning the use of the lantern in the teaching of history, while the leading article in the March issue is one dealing with "Legendary and Myth-making Process in Histories of the American Revolution." Each number contains the usual valuable reports from the historical field and recent bibliographies.

*History: a Quarterly Magazine for the Student and the Expert.* Edited by H. F. B. Wheeler. (London: 89 Farringdon Street, E.C.) 1s. net per number.—We have before us the first number of the second volume of this quarterly magazine specially designed for teachers of history. Although it is not officially the organ of the Historical Association, it is largely supported by that body, and it forms the medium by

which some of the more important papers read before its various branches attain to publication. In the January, 1913, number, for instance, there is an interesting paper on the Wars of the Roses, originally read by Rev. R. D. Budworth, headmaster of Durham School, before the North-Eastern branch of the association. Other articles in this number, all of which are well worth careful study, are "The Cause of Napoleon's Death," by Dr. Hildesheim; "The Reign of Richard III.," by Ruth Gimingham; "Nero in Modern Literature," by Prof. Gerothwohl; and "The Early History of the Compass and the First Scientific Maps," by Prof. Raymond Beazley. The papers are excellent. The magazine, however, is weak on its editorial side. It does not give a list of the important historical publications, book and magazine, during the preceding quarter. It has no outlook beyond the confines of England. Its reviews are scrappy and few. It obviously needs a board or committee of departmental sub-editors.

#### Mathematics.

*Elementary Trigonometry.* By R. S. Heath. 219 pp. (Clarendon Press.) 3s. 6d.—At the present day one scarcely expects much novelty in a text-book of elementary trigonometry. Dr. Heath's method of treating the subject differs, however, in several notable respects from that usually adopted, and is one which is well worthy of being tried by teachers. At the outset Dr. Heath assumes that pupils have acquired from the study of graphs a knowledge of the elements of co-ordinate geometry and of the use of positive and negative signs to indicate direction. The trigonometrical functions are then defined once for all for angles of any magnitude in terms of the co-ordinates of points on a circle. This definition yields without difficulty the relations between angles and their complements and supplements. The next step consists in obtaining the relations between the sides and angles of a triangle, the formulæ involving the half-angles being demonstrated by geometry. The establishment of the addition formulæ follows. This is done by means of the analytical expression for the distance between two points in terms of their co-ordinates, in connection with the cosine formula for a triangle. In this manner a general proof is obtained without using projection, a method which experience shows presents considerable difficulty to beginners. It will be seen that the circle rather than the right-angled triangle is taken as the fundamental figure, and so the character of the functions as circular functions is emphasised. This method of treating the subject possesses several obvious advantages, not the least being the saving of time effected. Dr. Heath has not hesitated to introduce a number of advanced problems arising naturally out of the matter in hand, but the book as a whole is well suited for the higher classes in schools and the intermediate classes at the university.

*A Treatise on Hydrostatics.* By G. M. Minchin. Vol. i., vi+198 pp. 4s. 6d. vol ii., iv+180 pp. 6s. Second edition, revised. (Clarendon Press.)—Prof. Minchin has taken advantage of the demand for a new edition of his work on hydrostatics, to rewrite a considerable portion, and to divide it into two volumes, of which the first contains those matters which can either be treated without the calculus or require only a small amount of it, while the second deals with the more difficult parts of the subject. In its present form the first volume is especially suitable for use by scholarship candidates. The number of examples has been greatly increased, but all have been judiciously selected, and many deal with applications

of practical importance. We notice a very neat proof of the particle rule for the position of the centre of pressure on a triangular lamina, and a very clear and full discussion of the fundamental principles of the different types of turbines. The second volume contains four chapters. In the first two are considered the more difficult problems relating to centres of pressure and stability. The chapter on the general equations contains much interesting matter, including some new graphical constructions for the Maclaurin and Jacobi ellipsoids. The last chapter provides an excellent introduction to the theory of molecular forces and capillarity.

#### Science and Technology.

*Text-Book of Hygiene for Teachers.* By Robert A. Lyster. viii + 496 pp. (Clive.) 4s. 6d.—The necessity of imparting, to all school children, systematic instruction in personal hygiene and the laws of health is generally conceded. It is clear that satisfactory instruction of this kind cannot be given by books alone; the teachers themselves must be able personally to apply the principles of hygiene to the everyday life of the school, if the maxims inculcated are to have any real significance in the minds of the pupils. Moreover, it is increasingly evident that the future health of the child is decided to a large extent by the conditions—controllable by the teacher—under which his school hours are passed. Finally, as the Board of Education has pointed out in a special memorandum, the success of the system of medical inspection of schools "will depend, immediately and ultimately, upon the cordial sympathy and assistance of the teachers." For these and other reasons a text-book of hygiene intended for the use of teachers must obviously deal with several special aspects of personal physiology and psychology, as well as of public health. Dr. Lyster has carried out his difficult task with conspicuous success, and his book will be welcome to all teachers and school managers anxious to learn how their great opportunities may be put to the best use. The three sections of the book deal respectively with the school, the scholar, and the medical supervision of school life. In each section the treatment is clear, vigorous, and authoritative; the illustrations are numerous and well selected. We can imagine nothing better adapted to the special purpose for which the book is written.

*Diet and the Maximum Duration of Life.* By C. Reinhardt. 108 pp. and index. (Stead's Publishing House.) 1s. net.—In the sixteenth century the average expectation of life was 24½ years; it had risen to forty years and a half in the nineteenth century; and Dr. Reinhardt holds with Metchnikoff—and with the compiler of Genesis—that if he will but take his food and drink, his work, and his pleasures in accordance with a system of more ordered simplicity, "man's days shall be an hundred and twenty years." The attainment of a long life merely for the sake of living long is but an ignoble ambition. But to secure a life of mingled vigour, activity, and usefulness is not, even in itself, an unworthy aim, the more so as it cannot be pursued without, incidentally, cultivating that combination of self-control and true moderation in all things which constitutes the real temperance. In this little book the subject is discussed in a clear, direct, and pleasant style, devoid of repellent technicalities. The author has contrived to compress within a small space a large mass of really valuable information, presenting it in an interesting and practical form, and investing it with that quality of gentle authority which springs from knowledge and experience.

*Health and Disease.* By Dr. W. Leslie Mackenzie. 254 pp. (Williams and Norgate.) 1s. net.—This is not a "text-book," either of hygiene or of physiology, but a survey—from the point of view of a medical member of the Local Government Board for Scotland—of the present stage of the organised war against disease. It naturally resolves itself largely into an account of public health administration, but contains, in addition, incidental articles upon immunity, antitoxin treatments, opsonic indices, and kindred topics, all of absorbing interest. The various aspects of tuberculosis, the hygienics of milk supply, the housing question, and several other subjects discussed here are matters of serious moment to every citizen, and it may be hoped that a book so authoritative in substance and attractive in style will be read widely. There is no index.

*Machine Construction and Drawing.* By A. E. Ingham. 143 pp. (Routledge.) 1s. 6d. net.—This book has been arranged to "conform to the requirements of actual practice in the workshop and drawing office, and to provide approximately a year's work in the evening technical school." The examples are well chosen, and the book forms a useful introduction to the standard manuals on machine design. The illustrations are generally clear, but in a few cases—e.g., the hanger (p. 76), the valves (pp. 108, 110 and 111, &c.)—the scale of reproduction is too small for the dimensions to be legible without difficulty. Chapter xiii., on workshop processes and materials, is, in our opinion, too condensed to be of much value and might well have been omitted; such notes as are given should only be made by students in the course of actual workshop instruction. In developing his subject, the author has introduced geometrical constructions as they are required. Thus, the correct curves of interpenetration of the surfaces of the crank shown on p. 81 are given; but it is not stated that these curves are seldom, if ever, correctly drawn in practice. On the other hand, no indication is given that the method of representing the chamfer of a nut, shown on p. 14, is conventional. An admirable feature of the book is the number of working drawings of details used in modern practice, and the author is to be congratulated on the care exercised in their selection and on his success in persuading the different firms concerned to allow their publication.

#### Miscellaneous.

THE general character of the *Home University Library of Modern Knowledge* (Williams and Norgate, 1s. net each, in cloth) has been described already in these columns. By the recent addition of ten more volumes the library now contains seventy books, the subjects of which range over every department of human knowledge. The absence of illustrations continues to be compensated for by the readableness of the books, and it will not be long before the general reader will be able to be sure of finding in the series interesting reading on any subject which attracts him. The attention of teachers in secondary schools may be directed particularly, in the field of science, to Prof. Meldola's volume on chemistry and Prof. B. Moore's on the origin and nature of life; in history to Mr. Herbert Fisher's "Napoleon"; and in literature to Mr. John Bailey's "Dr. Johnson and his Circle," Prof. J. G. Robertson's "Literature of Germany," and Mr. G. K. Chesterton's "The Victorian Age in Literature." Teachers responsible for school libraries will do well to acquaint themselves with this excellent series of books, which, at a small expenditure, will make it possible to secure a representative selection of volumes for their own and pupils' use.

## EDUCATIONAL BOOKS PUBLISHED DURING MARCH, 1913.

(Compiled from information provided by the  
Publishers.)

### Modern Languages.

"Key to Moore's Intermediate French Course." Parts i., ii., iii. (One volume.) 144 pp. (Blackie.) 4s. net.

"Matriculation French Essays." By H. J. Chaytor and W. G. Hartog. 134 pp. (Clive.) 1s. 6d.

"Intermediate French Reader." By L. J. Gardiner. 312 pp. (Clive.) 2s. 6d.

"Mes Premiers Pas." By M. L. Chapuzet and W. M. Daniels. 127 pp. (Harrap.) Without vocabulary, 1s. 3d.; with vocabulary, 1s. 6d.

### Classics.

"Thucydides' Histories." Book II. Edited by T. R. Mills, with a general introduction by H. Stuart Jones. 192 pp. (Clarendon Press.) 3s. 6d. Notes only, 2s. 6d.

"Folia Poetica; or Short Poems in Latin Verse." By J. C. Wordsworth. 72 pp. (Heffer.) 1s. net.

"Latin Self-Taught." By John Topham. 144 pp. (Marlborough.) Wrapper, 1s.; cloth, 1s. 6d.

"Latin Extracts for Sight Translation, with Hints for Beginners." By G. H. Ball. viii+92 pp. (Mills and Boon.) 1s.

### English: Grammar, Composition, Literature.

"A Junior Poetry Book." 96 pp. (Arnold.) Limp cloth, 6d.

"Erling the Bold: A Tale of the Norse Sea-Kings." By R. M. Ballantyne. With four coloured illustrations. 270 pp. (Blackie.) 1s.

The New National Readers—"Primer." 24 pp. 2d. "Preparatory Reader." 64 pp. 3d. "Elementary Reader." 104 pp. 5d. "Junior Reader." 144 pp. 7d. "Intermediate Reader." 160 pp. 9d. (Browne and Nolan.)

The Sterling Story Books for Schools—"The Life of the Bird, and other Tales (Infants)." 44 pp. 2d. "The Stone Bottle, and other Tales (Junior)." By Madge E. Denny and Florence Searle. 104 pp. 4d. (Browne and Nolan.)

"A Short English Grammar: Easy Lessons on Essentials, including Analysis and Composition." (Browne and Nolan.) 6d.

"Tennyson's Lady of Shalott and other Poems." Edited by B. C. Mulliner. With "The Princess." Edited by H. Allsop. Bound together. 176+128 pp. (Clarendon Press.) 3s. 6d.

"Selections from Walton, Bunyan, and Defoe." With introductions by Sir Arthur Quiller-Couch. 128 pp. (Clarendon Press.) 1s.

"Selected Essays of Plutarch." Translated by T. G. Tucker. 296 pp. (Clarendon Press.) 3s. 6d. net.

Shakespeare's "Julius Cæsar" (Oxford Plain Texts), with North's translation of Plutarch's "Julius Cæsar." Bound together. 64+112 pp. (Clarendon Press.) 2s.

"Beginnings in English." By Frances Lilian Taylor. 128 pp. (Harrap.) 9d.

"Picture Composition Book." By C. Foxley. 29 pp. (Harrap.) 4d.; limp cloth, 6d.

"Sir Gawain and the Green Knight." (All Time Tales Series.) Retold by John Harrington Cox. 119 pp. (Harrap.) 6d.

"Haliburton Primer." By M. W. Haliburton. 126 pp. (Heath.) 6d.

"Haliburton Second Reader." By M. W. Haliburton. 160 pp. (Heath.) 8d.

"Industrial Primer." By Mary B. Grubb and Frances Lilian Taylor. 128 pp. (Heath.) 6d.

"The Children's Tennyson." With Portrait, Biography, Notes, and Illustrations. 104 pp. (Macmillan.) Sewed, 6d.; limp cloth, 7d.

The Children's Classics (Illustrated)—Primary: No. 12, "Tales from Grimm," II. 32 pp. Sewed, 2d.; limp cloth, 3d. Senior: No. 55, "Quentin Durward." By Sir W. Scott. 96 pp. Sewed, 4d.; limp cloth, 5d. (Macmillan.)

The Tudor Shakespeare—"Julius Cæsar." Edited by R. M. Lovett. 148 pp. 1s. net. "The Merry Wives of Windsor." Edited by F. P. Emery. 178 pp. 1s. net. (Macmillan.)

"A Tale of Two Cities." By Charles Dickens. Abridged by Russell Scott. 232 pp. (Oxford University Press.) 2s. 6d.

"Notes to a Book of English Essays (1600-1900)." Selected by S. V. Makower and B. H. Blackwell. By A. F. Schuster. 134 pp. (Oxford University Press.) 1s. net.

"Lessons in Composition." By J. Eaton Feasey. I., 56 pp. II., 64 pp. (Pitman.) Paper, 4d.; cloth, 5d.

### History.

"St. George and Beowulf." (Two Historical Plays.) By Miss Amice Macdonell. 64 pp. (Allen.) 6d. net.

"Mexico and Her People of To-day." By Nevin C. Winter. 500 pp. (Cassell.) 7s. 6d. net.

"A History of the British Nation." By A. D. Innes. 1018 pp. (Jack.) *Edition de luxe*, 7s. 6d. net.

"Henry VIII." By Dr. A. F. Pollard. New and cheaper issue. (Longmans.) 4s. 6d. net.

"Essentials in Early European History." By S. B. Howe. (Longmans.) 7s. 6d. net.

### Geography.

"Africa and Australasia." By D. Frew. 80 pp. (Blackie.) 6d.

"North, Central, and South America." (Blackie's Elementary Regional and Practical Geographies.) By D. Frew. 80 pp. (Blackie.) 6d.

Cambridge County Geographies—"Herefordshire." By A. G. Bradley. xii+150 pp. (Cambridge University Press.) 1s. 6d.

The Oxford Geographies, vol. ii.—"The Junior Geography." By A. J. Herbertson and R. L. Thompson. With "Principles of Geography," by F. D. Herbertson; "Questions," by F. M. Kirk; and "Statistical Appendix," by E. G. R. Taylor. Bound together. 288+112+64. (Clarendon Press.) 3s. 6d.

"Lands and Peoples of the East." 131 pp. (McDougall.) 1s.

"The Western World." 142 pp. (McDougall.) 1s.

"Lancashire: the County Palatine." By E. Evans. (Longmans.) 1s. 6d.

"A Guide for Laboratory Geography Teaching." By O. D. von Engeln. 24 pp. (Macmillan.) 1s. net.

### Mathematics.

"Mathematical Papers for Admission into the Royal Military Academy and the Royal Military College for the Years 1905-1912." Edited by R. M. Milne. 392 pp. (Macmillan.) 6s.

"Examples in Algebra." Taken from part i. of "A School Algebra." Without Answers. By H. S. Hall. 176 pp. 2s. The same, with Answers. 214 pp. 2s. (Macmillan.)

"Home Arithmetic." By Mrs. K. Ross. 54 pp. (Pitman.) 6d.

"Handwork and Practical Arithmetic, I." (Scholar's Books.) By G. F. Johnson. 46 pp. (Pitman.) Paper, 3d.; cloth, 4d.

"Household Arithmetic, I." By Mrs. A. Griffin. 64 pp. (Pitman.) Paper, 4d.; cloth, 4½d.

#### Science and Technology.

"Service Chemistry: A Manual of Chemistry and Metallurgy and their Applications in the Naval and Military Services." By Prof. V. B. Lewes and J. S. S. Brame. Fourth edition, thoroughly revised. (Arnold.) 15s. net.

"A Course of Elementary Workshop Drawing." By H. A. Darling. 172 pp. (Blackie.) 1s. 6d.

"Garden Flowers as They Grow." (Twenty Lumière Plates.) By H. H. Thomas. 208 pp. (Cassell.) 5s. net.

"Laboratory Text-Book of Chemistry." By V. S. Bryant. 246 pp. (Jack.) 4s. net.

"Forms of Mental Defect." By Dr. F. Langmead. 15 pp. (Jack.) 1s. net.

"Elementary Principles of Electricity and Magnetism for Students of Engineering." By R. H. Hough and W. M. Boehm. 242 pp. (Macmillan.) 6s.

"Elementary Biology: Plant, Animal, and Human." By J. E. Peabody and A. E. Hunt. 622 pp. (Macmillan.) 5s. 6d. net.

"Junior Commercial Reader (Food-stuffs)." By F. W. Chambers. 238 pp. (Pitman.) 1s. 6d.

#### Pedagogy.

"Education and Industrial Training for Boys and Girls." (Blackie's Library of Pedagogics.) By Dr. H. Dyer. 118 pp. (Blackie.) 1s. net.

"The Dominions Notes of Lessons on 'Pattern Drafting.'" By J. Riley. 119 pp. (Pitman.) 2s. 6d. net.

#### Miscellaneous.

"Memorials of Old North Wales (Archæology)." Edited by E. Alfred Jones. 272 pp. (Allen.) 15s. net.

"Everyday Life in the Holy Land." By Rev. James Neil. (32 Coloured Illustrations.) 296 pp. (Cassell.) 7s. 6d. net.

"Australia for the Emigrant." By N. Keith Bushell. 16 pp. (Cassell.) 1s. net.

"The Economics of Everyday Life." Part I., "A First Book of Economic Study." By T. H. Penson. xiv + 176. (Cambridge University Press.) 3s. net.

Cambridge Bible for Schools and Colleges—"The Book of Judges in the Revised Version." By G. A. Cooke. xlii + 204. 2s. net. "The Book of Ruth in the Revised Version." By G. A. Cooke. xviii + 22 pp. 1s. net. "The Books of Judges and Ruth." In one Volume. By G. A. Cooke. 2s. 6d. net. (Cambridge University Press.)

"First Principles of Hygiene." By W. D. Sturrock. 256 pp. (Clarendon Press.) 2s. 6d.

"Educational Ideals and a Valiant Woman." By M. F. 303 pp. (Harrap.) 3s. 6d. net.

"The Parents' Book." By Rita Strauss. 744 pp. (Jack.) 3s. 6d. net.

"The Passing Months: Stories, &c., for Little Children." February, March, April, May, June, July and August, September, October, November, December and January. 10 vols. 16 pp. in each vol. (McDougall.) Each 1d. net.

"Training the Boy." By W. A. McKeever. 386 pp. + 35 page plates. (Macmillan.) 6s. 6d. net.

"English Commercial Correspondence for Home and Abroad." By W. Chevob-Maurice. (Marlborough.) Wrapper, 1s.; cloth, 1s. 6d.

#### Art.

"Simple Pictorial Illustration." By F. H. Brown and H. A. Rankin. 178 pp. (Pitman.) 4s. net.

"Clay Modelling for Infants." By F. H. Brown. 121 pp. (Pitman.) 2s. net.

## CORRESPONDENCE.

*The Editors do not hold themselves responsible for the opinions expressed in letters which appear in these columns. As a rule, a letter criticising any article or review printed in THE SCHOOL WORLD will be submitted to the contributor before publication, so that the criticism and reply may appear together.*

### Is a Pension Scheme for Schoolmasters Desirable?

ONE of the questions that occupy a prominent position in the agenda of all secondary-school teachers' meetings is that of pensions, and the general proposal, that Government pensions are desirable, always understanding that the assistant contributes, invariably receives a unanimous affirmative vote. Hence it is necessary to consider this question rather more in detail than is usually done, and see whether existing insurance companies do not offer much better schemes.

In the first place, the use of the word pension is certainly inaccurate. The old-age pension of 5s. a week is a pension in the strict sense of the word. The recipient pays nothing, directly at any rate, towards it. In the case of the teacher, the word pension should be superseded by annuity, as a great part of the cost is borne by the teacher.

One of the proposals put forward is that the teacher pays £9 a year and the Government a similar sum, the annuitant thus contributing at least 50 per cent. of the cost, but, when we remember that, in the event of death before the age at which the first payment of the annuity becomes due, no payments are returned, it is at once evident that the teacher's share is well above 50 per cent.

Any unfortunate who has contributed for, say, thirty years, and dies, has paid in £270, which, with interest during this period, will have increased considerably, and he has none of it to leave to anyone who may be dependent on him.

The prevalent idea regarding pensions seems to be that they are deferred pay, and whether this view be correct or not, the injustice of a general scheme is rendered obvious by considering the following instance. Suppose the pension is £100 per annum, and the retiring age sixty. Two men have taught for the same number of years, and so paid in the same amount. One lives to the age of seventy-five, and receives £1,500; the other dies at age sixty-one, and has only received £700. So it is possible for one man to get £1,400 more than another, though both may have done equally good work, for the same length of time. Of course, one may argue that the dead man doesn't need his pension, but his dependents certainly will.

In connection with this hypothetical case, the following extract from the actuaries' tables on the expectation of life will be of interest. The figures refer only to healthy males, selected persons in sound health. At age twenty-three the expectation of life is 39.87 years. Counting good and indifferent lives, the expectation is, of course, much smaller, and of any given number living at age twenty-three, more than 25 per cent. will be dead at age sixty.

Another of the great questions waiting for solution is that of better salaries. From the continual outcry of teachers on this point, one is justified in concluding that, in their opinion, at any rate, they are poor men. All the more reason why they should make as ample a provision as possible for dependents in the event of their death.

According to the statement recently issued by the Board of Education, the average salary of an assistant-master in 1911 was £168. Unfortunately ages are



not given, neither is the percentage of married men, but it would be probably correct to assume that the higher salaries go to the older men, and that many of these men have wives and children dependent on them. It will also be granted that these men deserve as much consideration as single men. For all such the pension scheme is a delusion, and the alternative assurance scheme outlined below stands out in vivid contrast.

The figures quoted are from the Norwich Union Life Office tables.

Assuming that a man commences teaching at age twenty-three, for an annual payment of £23 1s. 8d. he obtains a policy worth £1,000 at age fifty-eight or at death, should it occur at any time before that age. Thus, by one small payment, he at once creates an estate, which may realise at any time, and, for dependents, can only realise at the right time, viz., the death of the wage-earner. If he lives, he can only pay in £807 18s. 4d., and in actual practice the sum is less than this, because he gets a rebate of nearly £1 a year off his income tax. These figures show in a striking manner the great buying power of small sums, regularly invested, and, considered as an investment only, leaving out the immense additional advantage of being insured, it is the safest and best for the man of small means.

If the £23 premium seems a large one to a man commencing teaching, he can obtain the same policy on the half premium endowment scheme, whereby he only pays a little more than half the above premium for the first five years, and more subsequently to make up. After three years' payment of premiums, the policy acquires a surrender value, and in the event of pecuniary difficulties, money is advanced on the policy by the company at a low rate of interest, the policy meanwhile remaining valid.

At the conclusion of his life's work, should the insured person have no one dependent on him, he can, with the £1,000, buy an annuity of more than £100 a year, or, if he has a wife living, a joint annuity can be purchased, which goes on until the death of the survivor.

Thus one is forced to conclude that, if the Government brings forward any scheme whereby it agrees to pay a fixed sum to a teacher, it should be left to him whether he will utilise it in buying an endowment policy. A contribution of £9 a year will increase the above policy by nearly £400, and will be a genuine contribution, paid by the Government, and not by the unfortunate teachers who die either before or shortly after reaching the retiring age.

W. G. MARTIN.

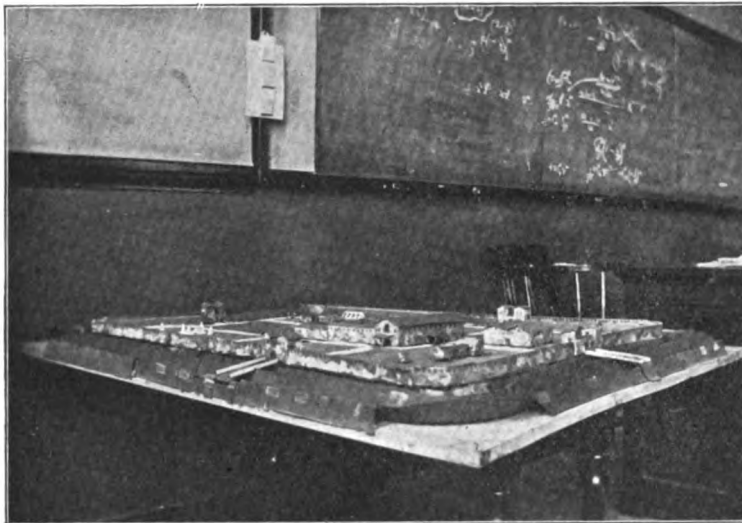
Grammar School, Hexham.

### Classical Handicraft.

It may be of interest to those of your readers who are concerned with the teaching of Latin to hear of a small experiment that has been made to instruct through the eye as well as the ear. Having been impressed for some years by the difficulty of inducing boys to become enthusiastic over, or even to understand, the descriptions, or flat pictorial representations, of such things as a Roman fortress, or camp, or Cæsar's bridge across the Rhine, I have cast about for some method of persuading them to understand these things in a concrete form.

It is difficult in a modern day school to find the time, or the boys, to construct models. However, during the latter half of last term, and the first part of this, with the aid of four boys (of fourteen years of age), and the expenditure of two hours a week, some little "building" has been achieved. A rough model of Cæsar's bridge, made from twigs, match-wood, and cardboard mounted on a wooden "river-bed," all made in proportion and painted, was constructed easily. A Roman fortress was more difficult.

After some trouble I succeeded in obtaining from Messrs. Teubner and Co., of Leipzig, a copy of their sheet cardboard models of the reconstructed Roman frontier fortress at Saalburg, of which I had heard at the Bangor summer Latin school of 1911. The model is printed in colours on flat cardboard sheets. All the sections are numbered, or lettered, consecutively, and had to be cut out and fastened



together by some adhesive. We used seccotine.

On the sheets was a very complete set of buildings—praetorium, drill-hall, baths, bakery, granaries, wells, &c.—together with walls and gate-houses. These, when cut out and put together, are very realistic. There were also sheets of figures, men, animals and trees, but these, being tawdry and out of proportion, we have not used. The double moat and mound, bridges, &c., had to be made, according to a scale given, from cardboard; this was the most arduous part of the undertaking. A rough ground plan was enclosed with the model, and some descriptive directions, but as every word is in German this necessitated—alas!—frequent appeals to a colleague more versed in modern languages. We have mounted the whole on a wooden board, 7 ft. 6 in. by 3 ft. 3 in., and have painted the trenches, paths, grass squares, &c. The general effect is quite good, and the fortress, having been removed to school, has excited much interest and inquiry.

The accompanying photograph<sup>1</sup> gives some idea of its appearance. These buildings, together with home-

<sup>1</sup> The photo was taken before the painting of the trenches.

made Latin calendars and other simple *Realien* (is that the right word nowadays?), have been of real use to many boys and of interest to all. I should be very grateful to any of your readers who would suggest new "Latin toys" to be made at home next winter.

W. C. C. COOKE.

Northampton School.

### Law of Signs in Multiplication.

THE following method of satisfying the minds of young pupils as to the "law of signs" in the multiplication of negative numbers is more direct and simpler than that given in many of the current textbooks:—

(1) The idea of negative numbers is introduced as usual in order to measure debts, trains shunting, fall of temperature, &c.

(2) The formula that  $s=vt$  is easily proved for positive numbers by reference to trains moving at a given speed for a given time.

(3) Let high noon be the zero of time, and let one, two, three, &c., o'clock be denoted by 1, 2, 3, &c.

Let eleven, ten, nine, &c., o'clock before noon be denoted by -1, -2, -3, &c., in accordance with the idea of negative numbers in (1).

Let a railway stretch from west to east, which is taken as the positive direction of velocity. Let the station be the zero of position, and let distances east of the station be positive. Let "shunting" mean travelling from east to west. Let a train always be conceived to pass the station at high noon.

If a train shunt at 40 miles an hour, it will be 120 miles on the positive side of the station 3 hours before noon, *i.e.*, at -3 o'clock. But in this case  $v=-40$  miles per hour, and  $t=-3$  hours, and  $s=120$ . Hence the formula  $s=vt$  holds also for the case of negative numbers if we postulate the law  $120=-40 \times -3$ . The laws  $-40 \times +3=-120$  and  $+40 \times -3=-120$  are easily explained in a similar way.

The deduction of these laws of signs in multiplication is usually effected by first postulating the distributive law (*i.e.*, the laws of brackets), and deducing the laws of signs therefrom. But it never appeals to young pupils, and even scholarship candidates fail to see where they are. The learner is in much the same position as the tourist viewing one of our ancient cathedrals; he can rarely see the cathedral for the scaffolding.

WILLIAM P. MILNE.

Clifton College.

### Growth and Development during School Life.

DURING the autumn terms of the years 1910-11-12 I have taken the physical measurements of the 300 boys in the William Ellis Endowed School, Gospel Oak, London, and the following remarks on statistics compiled from them may be interesting to others concerned in the physical welfare of the modern secondary-school boy. The measurements recorded consist of height, weight, chest girth (expansion, deflation, and difference), girth of upper arm and girth of calf.

Height and weight are the usual measurements taken in recording physique, but the chest expansion has more bearing in relation to health, and the arm and leg measurements are a means of recording muscular development besides being a means of giving the boys an added interest in their physical fitness.

Figures denoting height show that there is a period of slower growth between the ages of eleven and twelve years, and that the most rapid growth occurs between the ages of twelve, thirteen, fourteen, and fifteen. A gain of 3 in. in a year is common. Exceptional gain in height occurred in nine cases where

boys gained more than 4 in. in one year, and one boy gained 5 in.

A period of slower growth between the ages of eleven and twelve is also noticed in records of weight, while the greatest increase occurs between the ages of thirteen, fourteen, and fifteen, the accelerated weight beginning about a year after the acceleration in the increase of height. Twenty-one boys gained more than 20 lb. each in a year, and three boys gained 29 lb., 26 lb., and 25 lb. respectively.

In the records of chest measurements, a similar period of slower growth and development occurred between the ages of eleven and twelve, although not so marked as the height and weight, while the greatest increase is noticed between ages twelve, thirteen, fourteen, fifteen, and sixteen. Forty-two boys increased by 2½ in. in chest girth in a year, while three boys gained 3½ in. in a year. The degree of expansion varies much in boys—systematic breathing exercises helping a great deal in this development—some of the small boys having 3 in. expansion on breathing, while among the older boys there are several records of 4 in., and two with 4½ in. expansion.

Statistics relating to arm and leg measurements show a more uniform average increase year by year, but the least average increases occur between the ages of eleven and twelve years. Most increase in the girth of the arm occurs between fifteen and seventeen years of age, when more strenuous heaving and climbing exercises are practicable. Several boys increase by 1 in. in a year, and records show two with 1½ in. increase. A large number of boys gain 1½ in. in calf girth in a year, and there are four boys recorded with 1¾ in. increase.

The following are the measurements of a boy which indicate exceptional all-round growth and development:—

Date	Age	Height ft. in.	Weight st. lb.	Chest			Biceps in.	Calf in.
				Deflation in.	Expansion in.	Difference in.		
Oct. 1911	14	4 9½	5 9	25½	28½	3	7	11
„ 1912	15	5 2	7 10	28½	32	3½	8½	12½
Gain ...		0 4½	0 29	3	3½	½	1½	1½

Of course, in such cases of rapid growth it is necessary to keep boys under medical supervision to prevent any overstrain occurring during exercises or games. The following general facts are borne out in the statistics I have compiled: Increase in physical measurements is continuous during school life; the rate of increase is not uniform; a retardation in growth and development generally occurs in boys between the ages of eleven and twelve years.

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## The School World.

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# The School World

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SIXPENCE.

## EUGENICS AND THE SCHOOL.

By J. L. PATON, M.A.

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Where the children are taught to be laws to themselves and to depend on themselves,  
Where the city of the healthiest fathers stands,  
Where the city of the best-bodied mothers stands,  
There the great city stands.

**H**UMAN society is arriving at the period when it becomes conscious of itself, and begins to understand that collectively it has to no small extent the power of shaping out its own future and controlling the conditions, economic, social, and moral, under which that future will be lived. Darwin has taught it to recognise the principle of progress working in the past of the race, and the study of the past is beginning to develop a new sense of responsibility for the development of the future. There are many signs of this. The sense of solidarity has led the nation to charge itself, as it has never done before, with the care of its backward members, the inebriates, the mental defectives, the unemployable, the tubercular. But as soon as society takes upon itself the burden of this responsibility, it begins to say, "If we lay upon ourselves the care of these, our fellow-citizens, who are unable to keep up with the standards of human existence as formulated by modern civilisation, it is only reasonable that we should also have some effective control over the causes which produce these ineffective types." Such studies as the history of the Kallikak family make it clear that this matter cannot be any longer left to chance. The lower freedom must be curtailed if the higher freedom is to operate freely for the uplift of the race.

It is this new collective self-consciousness which has given such prominence to the study of eugenics. And eugenics, like any other social science, cannot translate itself into effectiveness without the help of the school and the teacher. Hence the conference organised by

the Eugenics Education Society on March 1st, a full report of which is given in *The Eugenics Review* for April.

The question propounded to the conference was formulated by the chairman, Major Leonard Darwin, in these words :

Our problem is, how to spread abroad this keen sense of racial responsibility. This end can only be attained, we hold, by making the inculcation of the eugenic ideal part of our national system of education.

As thus formulated the subject seemed to indicate something wholly novel to school-work as hitherto understood. But the discussion, as it proceeded, centred almost wholly round two topics which are continuously present to the mind of every teacher who is something more than a broker of information. First, how may our boys and girls be trained to have a conscience in matters of personal health, to respect their own bodies, and realise the dignity and sacredness of their position as life-givers, under God, to the generation that is to come after them? Secondly, what instruction is to be given to boys and girls on sexual matters? When should that instruction be given? In what form? By whom?

Every element in education has a reaction on character. The physical instructor in the gymnasium, if he is doing his work well, is giving moral training. The playing field is a place where not only limbs and lungs, but also the robuster qualities of character, are being trained by exercise. We are coming much nearer in modern times to the attitude of the Greeks, who could scarcely conceive of bodily education as distinct from psychic education, and as their great athletic festivals were held in honour of the gods, we shall come before long to think of physical training as part of our religious duty. "Sickly natures feel themselves dependent," said Herbart; "robust ones dare to will." Amid the growing luxury and softness of modern life it is the educator's part to stand firmly for hardness, fortitude, endurance. Soft bodies mean weak will-power. A

child that can discipline his body has got in him the basal element of moral habit.

All this was urged afresh at the conference. The new feature in the discussion was the forward-looking, anticipative point of view. This development of health-conscience and health-culture is not to be self-regarding merely, nor is it to be merely with a view to a wider and more effective service of one's fellow-men. Several speakers urged that the idea of responsibility to the future generation should be present to the teacher's mind all the time, and from time to time should be distinctly expressed. Indeed, if it is present in the teacher's mind, it is not necessary to say much, for children have a way of hearing what we think as well as what we say, and somehow what we think seems to impress them more than anything we express in words.

In the case of girls, the teacher's task in this respect is not hard. Lessons in home-making and the care of children now find a place in almost every curriculum, and the Board of Education seems to be making a special point of developing this side of the work on common-sense, practical lines. All this suggests motherhood, and a worthy conception of a mother's function in life. The suppressed premiss of domestic science is that home life is not a slipshod business, that can be picked up anyhow if occasion arises; it makes demand on our best thought, gives scope for the highest qualities of our spirit, and whether it is good or bad makes all the difference to the nation's life. This inculcation of the home ideal brings much in its train. A girl who has formed in her mind a high conception of what her home should be will not entrust the control of it to any low-class, improvident larrikin who is as loud in his attire as he is in his talk, and whose ideals of life do not rise above cigarettes and the latest music-hall doggerel. "In its largest sense," says Prof. Stanley Hall, "maternity might be the heart of all the higher training of young women."

In the case of boys, the difficulty is great, especially for men who are condemned to bachelorhood by our present method of doing education on the cheap. Besides, the boy has no thought of marriage yet. His business is first of all to earn his footing in the world, and that is as much as his outlook will stretch to for the time being. Something may be done by a course in hygiene, and it is one of the most formidable counts in the indictment against our examination system that it has shut the door on any widespread adoption of that branch of science which is of most direct personal interest to the boy, bears immediately on his athletics and the whole question

of training, and is of the most practical service for life in general. Boys' brigades and scout troops, which are not fettered by the requirements of "junior locals," have done more than schools in this direction, but even they keep themselves far too closely to treatment of accidents and injuries. Normal health is surely of greater importance than the abnormal fracture or the apoplectic fit.

The neglect of the subject is shown by the comparative absence of text-books. The Boys' Life Brigade, so far as I am aware, is the only organisation which publishes a manual of health, as well as a manual of ambulance; and such text-books as there are frequently ignore altogether the reproductive functions of the human system. The conference did not bring out this point as it should have done. Boys' schools are not backward in the inculcation of healthy habits and manly exercise, but they are almost wholly lacking in any system of health instruction; they teach a boy about all manner of chemical elements and abstruse processes of physics; they do not teach him about himself. Self-restraint is taught. Self-restraint is not enough; no negative is enough for boys; it does not stir their feeling, it has not enough colour in it. What we need for boys, as Miss Tuke said, is "an ideal which leads to the desire to excel," and it should be an ideal according to knowledge.

Another point to which attention was directed at the conference is even more important. If a boy is to learn a chivalrous respect for woman, it must be woman herself who teaches him. No system of segregation can do it. Monasticism always means a perverted conception of woman and a wrong attitude towards her. God places boys and girls in families, or He would do if we would let Him. The family is the most successful of all human institutions. Schools have artificially separated the brother from the sister, and both brother and sister have suffered for it. I know there are difficulties; the mistakes of the past, which have crystallised into brick and mortar, cannot be retrieved at one wave of the wand. I know there are dangers, especially in large urban centres. But, if it is true that each sex shows its best side in the presence of the other, these difficulties and dangers must be intelligently and perseveringly faced, and past mistakes must be rectified. Mr. Cecil Grant's statement was categoric: "Co-education makes for better marriages and better choice, inasmuch as it is based upon better and deeper knowledge." That statement remained unchallenged. It is a question for the Eugenics Education Society to see into. The pity of it is that our directing authorities did not get the best advice on this

question and make up their minds on it, before the expansion and systematisation of our secondary-school system were taken in hand.

But it was the question of sexual instruction round which the discussion chiefly centred. No one denies that the child ought to be taught the truth in these matters; no one denies the deplorable and irreparable mischief of ignorance. But yet, as a rule, no instruction is given. The teacher says to himself, "It is for the parent"; the parent leaves it to the teacher. Whichever is in the wrong, the net result is most certainly wrong. The suppression of the truth simply plays into the hands of the devil. True, it is a matter of great delicacy. One is dealing with the deep-down things of our nature; one is afraid of stirring into consciousness before their time feelings and questionings which as yet lie in the background. But the result of putting it off is not that these things are not learned, but that they are learned in the most undesirable of all possible ways. They are picked up most frequently from dirty-minded associates, who gloat over the possession of a mystic knowledge which has been purposely kept back by elder people, and if—as often happens—children's questions have been put off with answers that are untrue, the discovery of the truth fatally undermines that confidence which should exist between parent and child.

What, then, was the upshot of the conference? No one was satisfied with things as they are, and, though all speakers were not in absolute agreement on all points, the following points emerge pretty clearly from the discussion:

First, it is the business of the school to pave the way for sex instruction by means of nature study, including under that heading elementary biology. The keeping of pets and the experience of animals which comes to children on a farm are valuable helps towards fostering the right attitude.

Secondly, whoever imparts this instruction, it is dangerous to give it too early. The stimulative life of towns tends to precocity. Open-air games, plain diet, healthy occupations, and hard mental work help to retard this tendency.

"Quite apart from its intrinsic value," says Prof. Stanley Hall, "education should serve the purpose of preoccupation and should divert attention from an element of our nature the premature or excessive development of which dwarfs every part of soul and body."

Rousseau spoke out of the bitterness of his own life experience when he urged that it was the business of the educator to retard the growth of the sex-consciousness. But it is also

the business of the educator to prepare for enlightenment when the proper time does arrive.

Who is to do it? There was a general agreement that in an ideal world the boy would learn this from the father, the girl from her mother. There was also agreement, no less general, that in the world as it is, father and mother very rarely do give this instruction; and in face of their failure, the duty devolves upon the school. Should it be done in class or in private? There are men and women who can speak clearly on these subjects to large audiences. Anyone who has heard Bishop Taylor Smith speak to an assembly of boys knows with what power his words come home to them. But only few possess this gift. In general, each pupil will have to be treated individually. It must be done, not by means of moral exhortation, not by books or pamphlets, but by quiet, friendly talk. Such talk must be frank, simple, and to the point—not vaguely hortatory or allusive. It must address itself to those physiological changes which begin to manifest themselves in the period of adolescence, and which, if unexplained, may cause much distress of mind. The pupils must be made to feel that, if they deal rightly by themselves, they will not only benefit themselves, but they will help their school, and will one day help their children. Above all, the process of generation must be represented as part of the sacred process of Nature, as God's way of propagating life upon the earth. It must be invested with the atmosphere of reverence. Also, the child must be made to feel that its natural curiosity can be best satisfied by going first to its father or mother or its teacher, as the case may be, and if it is approached by any companion who has prurient ideas on the subject, the best answer is: "You had better speak to your father or mother about it."

At the same time the feeling for purity in a school should be not individual merely, but collective. The appeal must be made to the school as a whole to work together in the matter, to stamp out any beginnings which may make their appearance, to fight the battle for purity as one which concerns them all as a society, and to cultivate all those positive activities of healthy life, both physical and mental, which provide the best armour against the temptations of lust.

This is pre-eminently a subject in which home and school must co-operate, and perhaps the most practical thing in the whole conference was the account given by Miss Bonwick of the way she had carried the thing through in a school which would ordinarily be called "a slum school." The account is the more valu-

able because Prof. Sadler's report on moral instruction and training has nothing explicit in it derived from English experience.

Back of all lies a question which concerns the community as a whole and not teachers only, the question on which the Minister of Education touched when he explained the surplus on his education estimates, viz., the limitation of families. Canon Lyttelton was the only speaker who touched on this aspect. The decline in the birthrate has been continuous since 1875; it has shown signs of acceleration. If the Eugenics Society can grapple with that grave symptom of national decadence, probe its causes, and show the remedy, the new science may save the race.

### HISTORY TEACHING AND THE KINEMATOGRAPH.

By E. BRUCE FORREST, M.A.

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A PRINTED summary of films released in April, which lies before me, begins with 1,400 ft. of "Entertaining Auntie" and concludes with 1,900 ft. of "Vengeance." The classified list of about 600 new films which is attached to it does not contain one described even as historical. Nevertheless, although this may be typical of the general situation, and although so-called comedy and drama far exceed all other classes, about one film in five out of this issue has a more substantial character and is worth considering from the point of view of the teacher of one subject or another.

Even if that were not so, the abstract question of possibilities would call for the fullest inquiry. The trade is a rich and a powerful one. "It is estimated that in the country there are 6,000 kinematograph theatres, representing a total capital of £9,600,000." Films are produced at enormous expense of money and trouble. "'From Manger to Cross' cost £20,000 to produce and every incident was acted in the original spots in the Holy Land." The influences involved, for good or evil, are thus clearly enormous. A realisation of the dangers has been shown in the various recommendations of local authorities that the hours and the age of the admission of children to picture palaces should be regulated. From Bristol, Blackpool, Accrington, Darlington, for example, come reports of such restrictions. The contrary problem of fruitful use is, then, an urgent one. It is therefore satisfactory that a plan for exhibitions of educational films at certain selected halls to series of audiences of elementary-school children has been approved by the London County Council Education Committee, and that other authorities have discussed

similar proposals. Unfortunately, however, the suggested experiment in London has not in the end been sanctioned by the County Council itself.

As regards history, two main applications of the kinematograph are possible. The instrument might be used (1) for instruction in an ordinary course of general history, or (2) to give an understanding of the State as it exists and works to-day, *i.e.* to aid that teaching of civics which is commonly looked upon as part of a history teacher's work.

In relation to the former purpose there are films of two kinds, those picturing (a) actual conditions, and (b) situations artificially produced. So far as 1 (a) is concerned, a large and systematic selection could be made dealing with present conditions and with what has subsisted from the past in localities of historic interest. It would serve to enforce and to give life and value to the historical story which lies in the background.

Let us consider, in the first place, a course in world history.

In the sphere of ancient history there are, for instance, many films dealing with Egypt. The Temple of Philæ, Luxor, Karnak, Memphis, the Pyramids, the Sphinx, Alexandria, Cairo, are all represented. There is an abundance of material from Athens, Rome, and Constantinople. The Roman pictures would serve for lessons both on the Republic, the Principate, and the Papacy. The ruins of Pompeii are another good example.

If we pass to later times and think of mediæval and modern history there are series showing the relics of Mohammedan rule in Spain and very many giving suggestive views from Venice, Paris, Berlin, London, &c. The interesting films dealing with modern Japan and the Russo-Japanese war may also be mentioned as a concluding illustration.

Secondly, it would not be difficult to make up from existing sources an exhibition which would strengthen the realisation of certain aspects of national history. Ancient remains like those of Stonehenge, views from the island of Iona, historic cities such as St. Albans, Chester, Rochester, Conway, many famous castles, all figure in the catalogues of manufacturers.

Colonial and Imperial history offers one of the best fields for experiment. The film dealing with Washington and Mount Vernon is an instance with reference to the United States. In Canada scenes from Quebec and Montreal emphasise amongst other things the persistence of French influences, and the tercentenary celebrations in the former city were photographed. From Winnipeg may be derived

suggestions of the great progress and expansion of the West in recent times. India gives us views from Surat, Bombay, Calcutta, and Delhi, the latter including distinct evidence of incidents from the Mutiny. The Durbar, with its great assemblage of ruling chiefs, could be turned to important account. Australia, New Zealand, South Africa, and modern Egypt provide a large kinematographic library from which the teacher could choose for his own purposes. Egypt especially, with modern developments expressed in films of the Suez Canal, of the great engineering constructions on the Nile, and of incidents such as a review of troops by Lord Kitchener at Khartum, offers some particularly helpful records. The various evidences of Colonial military and naval enterprise during the last few years are also decidedly of historical value.

"But these films," it may be objected, "are geographical, not historical." The answer is that the concrete materials for historical instruction are undoubtedly to a certain extent the same as those for geography teaching. The difference lies in the selection of the details and in the method of use. The common yet differing employment of the map by the geographer and the historian is a case in proof of this point.

It may further be contended that for these purposes still pictures are equally useful. But the living qualities of moving pictures, the combinations, and the illustrative methods possible with them, are substantial additional advantages.<sup>1</sup> In this connection it is of interest to notice that at the Kinematograph Exhibition at Olympia the conference on the teaching of history and geography gave no support to a motion to the effect that still pictures are preferable to moving pictures.

The suggestions above should not, moreover, be taken to imply a proposal that current films ought to be used exactly as they stand for history teaching. Selection and compilation of parts from a large number are quite feasible and would be necessary.

Before leaving the question of this kind of use of authentic pictures, one other point, perhaps the most important consideration of all, ought certainly to be discussed. What can be done now and what may be done in the future with "topical films"? A resolution stating that an attempt should be made to form a library of them as an aid to future history-teaching was passed *nem. con.* at the conference just referred to. There are, I understand, practical difficulties in the way of preserving

films. But surely these could be surmounted, and, although without direct knowledge of the facts, I am informed on good authority that such collections have already been organised abroad.

At present films of this type do not go back much farther than, in this country, Queen Victoria's Diamond Jubilee in 1897, and, in America, the inauguration of President McKinley in 1896. Yet even so, they record great changes and would teach useful lessons. How immense, for example, are the alterations in conditions of traffic since those dates! Such things as early aviation experiments and the first aviation meeting in France are included amongst these records. Nor should the importance of moving pictures of great personages who are now dead or who have passed out of active public life be minimised. Should we not be glad to have them from a more remote past and for the illustrious representatives of earlier ages if only that also were possible?

It still remains to deal with 1 (b), films depicting artificial reproductions of past events and conditions. The pageants which have been so frequent during recent years will immediately be remembered. They are, of course, mainly of national or local interest. The Sherborne, Warwick, and Dover pageants are amongst those which may still be seen through the medium of the kinematograph. Numerous scenes dealing with British, Roman, Saxon, Norman, mediæval and early modern history could by their means be set before pupils, although in no case, unfortunately, do these particular pageants extend beyond the time of Charles I. Various illustrations might also be obtained from the pictures of the pageant entitled "The Duel in All Ages," which was organised not very long ago in London.

A considerable number of films dealing with historical characters have been brought out in the ordinary way of business by the trade. They vary very much in merit. A heading, to take one case, such as "The Long-looked-for American-made Production" does not inspire confidence. The historicity of many of them does not, indeed, go far beyond an entirely unauthoritative use of certain great names. Producers, in fact, will say frankly, "considerable liberties are taken with the fact" and "historical subjects do not pay." Nevertheless, there are a few over which great pains have been taken. They have in some cases been criticised with undue severity, and are at any rate no worse than many so-called historical plays and novels, which have been treated far more leniently. Dealers who are making useful attempts of this kind should be

<sup>1</sup> The Vivaphone, synchronising the gramophone and the kinematograph, and the Kinoplastikon, which is reported to "dispense with both the screen and the darkened stage, the moving figures being projected stereoscopically into space," suggest still more remarkable developments.

helped and encouraged, not snubbed and derided.

The second main division of the subject, as stated at the commencement of this article, has not yet been touched upon, *i.e.* the use of the cinematograph for the teaching of civics. This is a department in which little appears to have been produced by the trade, so that it is not practicable to lay down proposals in any way based upon actual conditions. Yet it is here that the camera might, perhaps, be turned to the most effective account. What has been done for certain great industries and industrial concerns could well be done for much of the machinery and many of the institutions of the State, of municipal and of other local government authorities. Would not a film demonstrating all the processes of an election be both valuable and, if a prominent statesman were concerned, popular? It would show canvassing, addressing meetings, the details of polling, counting and returning, the opening of Parliament and, if some authorised operator could be allowed within the House, something of its procedure. Similar films might illustrate our system of law and justice and other branches of the national executive. Various types of municipal activity, which could be demonstrated in the same way, will at once occur to the reader and need not be detailed. It is distinctly unfortunate that there has not been more attempted in this direction. Would not public funds even be well spent in an endeavour to create in this fashion a fuller knowledge of these matters amongst present and future citizens?

Despite the deficiencies in the supply which have been indicated, enough has perhaps been said to make it clear that there is plenty of scope for making a trial with the cinematograph in the teaching of history. With regard to the whole problem of its use, there are certainly a number of quite general questions to which answers are required. Is there any physical danger to the eyes possible from moving pictures? May there be a likelihood of intellectual or moral harm from, perhaps, surfeiting rather than stimulating imagination? How frequently should pictures be used? Should apparatus be set up in schools or should pupils be taken to some fixed centre or centres? These and kindred points have not been referred to in the present article as they do not come within the range of an inquiry treating only of the application of the method to a single subject. But there is one detail which needs to be emphasised. It is of the utmost importance that a teacher should be able to check the series of pictures wherever he may wish to elaborate any particular ex-

planation. Films with which this is possible to some extent are already on the market. Finally it may not be inappropriate to affirm the conviction that the higher use of the cinematograph is a question as important for adults and the adolescent as for those of school age. It has great possibilities as a popular means of widening experience, and it would be well if this could be realised by people who would endeavour to utilise it with very different aims from those of the average showman.

### EXCHANGE OF CHILDREN.

By G. F. BRIDGE, M.A.

Honorary Secretary to the Modern Language Association.

**H**OW are we, and especially our children, to get to know and understand foreign peoples? Except the fundamental problem of how boys and girls are to acquire a command of foreign tongues, no question presses more urgently upon the modern language teacher than this. For the great mass of schoolmasters and mistresses it takes precedence of even the question of the best way to introduce school children to foreign literatures. For the majority of children leave school at fifteen or sixteen, an age at which the comprehension of more than just the few books suitable for that period of life is impossible. Moreover, it has to be remembered that any knowledge of France and Germany that we gain through literature is, after all, only second-hand knowledge. It is really not much better than the knowledge of chemistry or geography that is acquired by studying text-books. To understand properly even French novels you must first know Frenchmen and Frenchwomen in flesh and blood, just as to understand a work on mountains or rivers properly you must first see mountains and rivers with your own eyes.

In these days we read too much and we see too little. As Mr. Hilaire Belloc, in one of the happiest of his little essays, says, "we get our impressions for the most part as imaginary pictures called up by printer's ink"; and not only that, but "printer's ink ends by actually preventing one from seeing things that are there." In times like these, indeed, when on all sides there exists such a ravenous appetite for information, and such ample means of satisfying it by reading books, it is most necessary to urge upon teachers, and, one may add, upon all Cabinet Ministers, bishops, and other important personages who like making speeches in praise of reading, that this satisfaction may be, and frequently is, only a snare and a pitfall. Most of all is the teacher of language liable to fall into the trap. For words are the very subject of his instruction.,



and he must be almost more than mortal if he does not occasionally slip into the error of confounding the knowledge of words with the knowledge of things. Continually, indeed, during the last five centuries he has been warned against it; there is scarcely an educational reformer from Rabelais to Spencer who has not made "Not words, but things" the motto of his teaching. Even in the study of literature it is true that we should seek for things, the "things" here being thought and information, and not merely for beauty of words and expression. But before even the study of thought must come the knowledge of fact, and of fact as seen with our own eyes. Children must learn the facts about foreign nations for themselves and with their own senses before they can acquire the power to use books intelligently for the purpose of gaining information about them.

But how much knowledge of a foreign country can a child gain by using its own eyes and ears? Clearly he will not gain much by merely "touring" or spending a few days at a seaside watering-place. A cursory glance at some of the most superficial aspects of national life will not help much. A young child must be placed in an environment natural to him, one which he can really understand. The most natural environment for a child and that which he can understand best is the family. Moreover, it is in the family that human beings get back most nearly to nature and wear least of the garments of conventionality. It is surely through the foreign family that the child's first introduction to the foreign people should come.

But a residence with a French or German family is not easy to arrange. The expense is prohibitive to all people of small means, the difficulty of finding a suitable and willing family often insurmountable even where lack of funds does not block the way. But these obstacles can be got over if families in different countries are willing to help one another. Let children be exchanged, and the money difficulty disappears. Let recognised bureaux of good standing in the different countries manage the arrangements, and the right people can be brought into contact with one another.

The first big scheme for a clearing-house for exchanges was framed, we believe, in Paris, and the Société d'Echange International des Enfants has been doing a good work there for several years under distinguished patronage and with the support of the French Government. Recently a committee of officials, professors, and teachers, including several heads of *Realschulen* and *Realgymnasien*, has been formed in Berlin for the

purpose of arranging exchanges. In Belgium also there is an organising association. In England the Modern Language Association does the work, and the Scottish society of the same name is now co-operating with it.

The method of operation is very simple. Parents in this country who wish to effect an exchange write to Miss Batchelor, Bedford College, Regent's Park, N.W., the lady who manages this department of the association's work. In return they receive a printed paper of questions which they are requested to answer. They are asked of what their family consists, what their occupation is, whether their house has a garden, whether the foreign child will have a bedroom to itself, and so forth. This catechism may seem to savour of the tax collector and other inquisitorial personages abhorrent to every true-born Briton, but it is really necessary that Miss Batchelor should have very full information about the English child's home if she is to find him or her a suitable home in France. Pairing off fifty or a hundred British and foreign families belonging to many different grades of society is a delicate task, and one that cannot be successfully carried out without full and definite information. Well, the information given and a fee of 7s. 6d. sent (the only expense, except travelling-money, of the whole transaction), the manager of the bureau corresponds with the organisation of the country to which the child is to go, receives notices from it of suitable "vacancies," if one may use the expression, and passes on the most likely one to the parents concerned. Thus the two families are brought into communication with one another, and can make all further arrangements themselves. References are required on both sides and are taken up whenever it seems desirable. Parents must arrange themselves for the child's journey, but in most cases a reduction in fares is granted by the railway companies to children travelling under the auspices of one of the organising associations.

And the child, what of him in his foreign surroundings? Well, in the first place he gets a holiday on the Continent for practically nothing. He almost invariably enjoys himself. He finds himself in novel surroundings, he makes friends with new people, and enters into their life and amusements. It is quite remarkable in how few cases these wanderers fail to be happy in their temporary homes. Some five-and-twenty families who were entertaining French boys and girls were visited by members of the English organising committee last summer, and only one complete, and one partial, failure was discovered. With respect to English children who go abroad, it is worthy of note that the only complaints—and

they are very few—have come from children who have gone to a French family who are spending their holidays in some small villa at some petty seaside watering-place. The moral is obvious. It is the real home which the child finds interesting—not the temporary substitute for it.

Next, the boys and girls in many cases really get to like their foreign friends and to understand and like the ways and life of the foreign country. They learn to know Frenchmen and Germans at first hand, in the pleasantest circumstances. They are approaching the study of a foreign nation from the right end. This may seem big language, and, of course, it is not contended that a young boy or girl will consciously ponder over the differences of English and French or German character as revealed in family life, or will philosophise about the ways in which various nations seek to amuse themselves. But insensibly he or she will acquire much knowledge, which later will furnish food for reflection. Likely enough, he or she will make friendships which will endure far on into life. Such friendships are the strongest bonds between nations; no one who has friends in France or Germany can have any but friendly feelings for the peoples, however much the proceedings of their Governments may annoy him.

Lastly the child has the best possible opportunity of really learning to speak French. Schools can do but little in this direction; the cultivation of fluency of speech in children is not their business, and they can offer few occasions for genuine conversation. They can prepare the way, no doubt; they can train in accurate pronunciation, they can cultivate the ear, they can give some practice in the utterance of French and German, and help children to surmount the initial difficulties of using a foreign tongue. But they can furnish no adequate opportunities to a boy or girl for the free, unhampered expression of his or her own thoughts and feelings, especially feelings, in any language but the mother-tongue. If they do their proper work well, it is all we need ask of them; parents who wish their sons and daughters to acquire real fluency in French and German should send them abroad. It is remarkable, indeed, what progress well-taught children (about ill-taught children we are not quite so sure) make in a few weeks when they are surrounded by foreign people and find that they have no chance to express themselves except in the foreign idiom. There is plenty of testimony to this in the archives of the Modern Language Association. It is pleasant, too, to be able to add that they get much assistance from their hosts. English

parents in many cases are just as ready to help their guests. Some read English books with or to them, others give them dictation, or correct what they write in English, all talk to them, and take them about to interesting sights or places of entertainment.

The last clause refers especially to exchanges for the holidays, but all exchanges are not made merely for the four or six weeks of a vacation. Some are made for much longer periods—three or six months—and it is greatly to be desired that the number of arrangements made for these lengthy periods of residence abroad should be increased. For school children no doubt such visits can rarely be possible, but there must be many cases in which young men and girls who have left school would welcome the chance of a six months' stay in France or Germany, either to learn the language of the country, or to study art or music. Great care has to be exercised in arranging exchanges of this kind, but in a number of cases it has been done with success and with great profit to the people concerned. A stay abroad at eighteen or nineteen is in many ways more beneficial than a similar stay at thirteen or fourteen. That is perhaps the youngest age at which it is advisable for children to go into a foreign family, though there are many instances of successful exchanges where the children are only twelve.

Residence abroad, accepted as a necessary supplement to the work of university professors in teaching foreign languages, is by the system of exchange brought within the reach of quite humble people. Policemen, artisans, and railwaymen are to be found amongst the parents who have taken advantage of the scheme. It has proved its utility: the boy or girl who has been abroad usually goes to the top or nearly to the top of his class in French when he returns, and surely it needs only to be more widely known to be more widely used.

## SECONDARY SCHOOLS AND THE REPORT OF THE ROYAL COMMISSION ON UNIVERSITY EDUCATION IN LONDON.

By FRED CHARLES, B.A.

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THE Royal Commission on University Education in London appointed in 1910 has at length presented its final report. With that part of the report about which there will be most controversy, the merits or demerits of external degrees, this article is only indirectly concerned. Since, however, a great majority of university students receive their

previous education in secondary schools, the secondary schools, and especially those in London, will be materially affected by any reorganisation of the University. Those recommendations which concern the schools most nearly are:—

*The Admission of Students to the University.*—The normal qualification for admission to the University will be a school examination based upon the curriculum of the school.

There should be two such examinations. A lower school examination planned for pupils of about the age of sixteen, which should be a test of general education, and a higher school examination planned for pupils of about the age of eighteen, which should be suitable as a test for pupils whose course has to some extent been specialised. A student admitted to the University on the higher school examination in which the appropriate subjects have been taken will be excused the Intermediate examination for the degree in faculties other than Medicine, but the course for a degree will not be shortened.

A student admitted on the higher school examination will, after the appropriate subjects have been taken, be excused from the Preliminary Science examination, and will be admitted direct to the Faculty of Medicine, his course in the University being shortened to four and a half years.

A student admitted on the lower school examination and a student admitted on the higher school examination in which the science subjects have not been taken will be required to pass a Preliminary Science examination before admission to the Faculty of Medicine, and in other faculties required to pass an Intermediate examination at or after the close of his first year of study.

The Matriculation examination, to which pupils in schools will not be admitted, will be retained for those students who do not approach the University through the normal avenue of the secondary school.

*The Registration of Students of the University.*—No student will be registered as an undergraduate of the University until he has reached the age of seventeen, and unless he has made application to the University for registration, either through the authorities of his college or University department, or through the authorities of his school. If he is a student of some other institution, not being a secondary school, or if he is a private student, then he must apply personally or by letter.

*Inspection and Examination of Schools.*—The University will cease to inspect schools. For the present, the University will continue to conduct school examinations which should be of two grades as explained above (see under Admission of Students to the University), and which will qualify pupils for admission as matriculated students of the University.

The work connected with school examinations will be supervised by a special committee of the Senate upon which teachers in the various types of school examined will be largely represented.

In the report, the Commissioners set out as

the first essential of university education intercourse between students and between student and teachers, but this intercourse is not found in the present incorporated colleges nearly so strongly developed as it now is in the secondary schools. The difference, too, between the work of the secondary school and that of the University is stated to be that

“In the secondary schools it is expected that a knowledge of many things should be acquired while the mind is specially receptive, and during this stage of education definite tasks are rightly prescribed. But even more important than knowledge is the moral and mental training needed for later success in study in life, which the pupils gain by the orderly exercise of all their activities demanded in a well-arranged school.

“University teaching,” on the other hand, is “teaching suited to adults; that it is scientific, detached, and impartial in character; that it aims not so much at filling the mind of the student with facts or theories as at calling forth his own individuality, and stimulating him to mental effort; that it accustoms him to the critical study of the leading authorities, with, perhaps, occasional references to first-hand sources of information, and that it implants in his mind a standard of thoroughness, and gives him a sense of the difficulty as well as of the value of truth.”

While the difference, thus clearly drawn, is reasonable and generally acceptable, yet from the point of view of the secondary schools it, perhaps, lays too much stress on knowledge of many things. The chief work of the secondary schools is not so much “to give a knowledge of many things,” not so much to “fill the mind with facts” as to help the pupils to accumulate facts for themselves; not so much to teach them subjects as to teach them how to learn; not so much to help them as to help them to help themselves. Secondary education is not concerned merely with the providing of such tools as addition and multiplication, but with the development of mental aptitude. Remarks relating to *personnel*, to the influences of the teacher and the effect of intercourse between students, apply very largely to the upper part of the secondary schools. While everyone agrees with Helmholtz that “anyone who has once come into contact with one or more men of the first rank must have had his whole mental standard altered for the rest of his life,” yet this contact is not obtained solely in the universities, and fortunately so, for a very large number of the pupils in the secondary schools never reach a university; they have their outlook broadened and their mental standard altered for the better in secondary schools.

“Lectures have not lost their use and books never fully take the place of the living spoken word,” is undoubtedly correct, but the uni-

versity colleges must look to their management, for much of the supervision of the staff in secondary schools is, at the present time, only too much needed in the colleges. The words of university lecturers must be audible and their writing must be legible, especially on the board before a class. The absence of the whole class from a lesson on account of unjust criticism, together with inefficiency, would not for a moment be brooked in secondary schools, and yet it is not unknown in a university college.

The Commissioners, however, are rightly concerned with an ideal university, and might equally assume ideal secondary schools. This ideal school is to give "a sound general education," which is the indispensable basis of university work. "It is, no doubt, possible for a considerable amount of knowledge of a specialised kind to be acquired upon a relatively meagre groundwork of general education; but for the ordinary student a point is reached sooner or later, and more often soon than late, where all further advance is hampered, if not entirely prohibited, unless he has acquired the power of accurate expression and orderly thought. These are the two intellectual qualifications which, stated in the most general terms, it is the aim of a sound general education to give, and if they do not exist a large part of the benefits of a university training will be lost. These intellectual qualifications, together with the moral habits acquired at school—diligence, perseverance, regularity, the self-control which enables work to be done in spite of disinclination—have always been of the same value as a fitting preparation for university education. But it is more important now than it used to be that they should be accompanied by a wide range of study at school, at an age when the retentive memory and receptivity of mind enable a large store of information on a number of different subjects to be acquired."

Even with ideal schools and universities a certain amount of overlapping seems inevitable. The period from sixteen to eighteen or nineteen years of age, during which a boy should be passing from the stage in which almost his whole time is occupied by school activities to that in which he becomes personally responsible for his occupation, is far better spent at school. There, in the later and perhaps most important years of school life, he learns under supervision to direct the activities of others, and in so doing acquires a sense of responsibility and a power of command that can be acquired in no better school. It is these qualities, together with the willingness to accept responsibility that accompanies

them, that distinguish English boys from those of any other nation.

The Commissioners recognise to some extent the advantage of spending these later years in the secondary schools; their recommendation, however, is rather a half-hearted one, and fixes the minimum age of entry at seventeen. This, from the schoolmaster's point of view, is scarcely high enough; he would probably prefer eighteen, the age at which at the present time his pupils take the Intermediate Arts or Science. He would support his preference by reference to the effect on the character of the pupils themselves, the effect on their method of study, and the effect on the intellectual and social life of the school.

The adoption of the recommendation would tend to lop off the tops of the better secondary schools unless the influence of examinations delays the age of entry to the University.

The opinions of the Commissioners with regard to examinations are practically those expressed by the consultative committee in its report on examinations in secondary schools. The Matriculation examination is condemned as unsuitable for school purposes: "the external examinations usually taken in secondary schools cannot be said to give more than an uncertain indication of the candidates' real mental powers. Some candidates are at their worst in examinations, and in any case, when judgment is based on one examination effort, mistakes are sure to be made." Further than this, from the side of the University "the evil effects of an external examination such as that for matriculation upon the work of both pupils and teachers in schools have been admirably described in the report of the consultative committee. They are analogous to those connected with the external University examinations with which we have already dealt. But apart from all the objections to purely external examinations from the point of view of the schools, there is the added objection from the side of the University that an external examination, such as that for matriculation, now affords no guarantee of the liberal education and general training which form a far more important preliminary to university education than the acquirement of a definite standard in particular subjects of study."

The finding of the Commissioners is not likely to meet with universal acceptance; many will agree that the present Matriculation is not at present an ideal test of a sound, general education, but few will go so far as to wish that it should be ended rather than mended.

The suggested institution of two school

examinations will be keenly criticised. If a capable public body, really educational, independent of politicians, can take a broad view and design two suitable examinations that will guarantee uniformity of standard of attainment and of intelligence without in any way checking the initiative or limiting the curriculum and freedom of action in the schools, then the recommendation would probably be welcomed by most teachers in secondary schools. Many, however, will deny the existence of such a public body; others will maintain that the task set is an impossible task; that no office, no body of men, however expert, could, in co-operation with the teachers in a large number of schools in a variety of districts, set so good a test of sound, general education as the Matriculation is or was.

The question of examinations is one, however, that neither this Royal Commission nor the University of London, present or future, can settle by itself. It is a question for all those bodies now holding examinations taken by secondary schools. The simplest first step towards its settlement would be a conference of practical men, representing the various examining bodies called together by the Board of Education—the only existing authority that could call together such a conference with reasonable hope of success.

The conclusions of the Commission are almost identical with those of the committee appointed by the British Association to consider the overlapping between secondary schools and universities. The main difference is the age at which the second or higher examination should be taken. The British Association resolved in favour of an examination "suitable for pupils between eighteen and nineteen years of age"; the Commissioners "an examination planned for pupils of about the age of eighteen."

The Commissioners recognise the unfitness of "a considerable number of the regular day students" for registration as undergraduates, and express their belief that "when the universities are prepared to leave secondary education to the schools, the schools will rise to the standard which the universities demand." Of this they might well be assured, for the schools have been crying out against the admission of schoolboys to the colleges even before they have matriculated. At least one of the colleges has had a matriculation class students from which have repeatedly failed to matriculate; the provision of secondary education may have been inadequate, but it was not so inefficient as the substitute provided within the walls of at any rate one of the university colleges.

Thus far the influence on the scholars has been considered. Any change in the University of London affects the schools in yet another way, and the effect is more direct perhaps than in any other, unless, perhaps, it is through the age of transfer from the school to the University.

A very large number of the teachers in secondary schools are graduates of London University; if a careful analysis of the University qualifications of the staffs of what might be called non-conference schools were made, it would be found that the number of graduates of London forms a large part of the teaching strength. Many of these men served their apprenticeship before graduating; some of their work was done under the conditions of which Mr. Acland in his evidence expressed strong disapproval.

"I have formed the opinion," he said, "that anything which encourages the teachers, after they have begun their work, to seek for degrees and prepare for them, while they are teaching, is on the whole very undesirable. I think broadly that if we are to have an effective supply of well-taught schools, both secondary and primary, in this country, the teacher ought to have his qualifications before he starts out upon his work and begins teaching. If a degree ought to be one of those qualifications he ought to have that degree before he begins to teach, with this qualification, that if he does not start with a degree, but desires later on to obtain one, my view is that during the period he is working for the degree he ought to cease teaching, and therefore if he is to obtain the degree, he ought to go to a university . . . a university where at any rate he will do two things which I consider the note of a university properly so-called: he will come into contact with distinguished teachers and he will get a certain amount of social life, which a residential university generally provides."

Such an ordeal has been the making of many men, and there is a danger—and a real danger—of making the paths of education too easy, of bringing up a race of weakly teachers as well as a race of weakly schoolboys. Ease of attainment may spoil teachers as predigested material and peptonised mental pabulum spoil schoolboys.

It may be said that there are no conclusions as to the effect of the report on the secondary schools. Conclusions are unattainable; even were the recommendations of the report generally acceptable, financial considerations might prevent their being carried out. Were the recommendations acceptable and the money forthcoming, it is even then doubtful whether a university on the residential plan, a university presupposing that the intercourse at the university is the chief intercourse of its undergraduates, is possible in the midst of the life of London.

## EDUCATION IN ENGLAND.

## A SURVEY OF THE REPORT OF THE BOARD OF EDUCATION.

By G. H. CLARKE, M.A.

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IF statistics laboriously collected and wise comments could compel progress, our education would be in a happy position, and the Board of Education might rest on its laurels. For the report under consideration covers the whole field of education, with the exception of the work of the public schools and some sides of that of universities. It is drawn up with all the acumen we expect in such a document. If here and there we venture, in what follows, to read between the lines and to supply comments, it is on what is recorded, more than on what is done, by the Board. When the success of the free place system is referred to, for example, we wonder what is to happen to those grammar schools that are wasting away under its influence. We say this without denying in any way the qualities of the free placers, of many of whom one must hold a high opinion.

When reference is made to the natural unwillingness (p. 24) of elementary-school teachers to part with a capable child, we deplore this bar to the progress of bright pupils—a bar only too common! But these drawbacks are not the work of the Board. Full credit is due to the report for what it is—a record of splendid endeavour. As Lord Haldane puts it: "We are going on. There is magnificent work being done for education in this country."

In many respects, more particularly in the externals of education, the report produces evidence of this progress. Among the many improvements that are due to the initiative of the Board we pick out, from the pages devoted to elementary schools (p. 34 *ff.*), the increase of six in the small band of women employed to inspect, the mention of notable advance in the comfort and adequacy of school buildings, and the claim that a more suitable curriculum is now in vogue. Here progress was needed. For example, a student teacher, who had been taught modern mathematical methods in his secondary school, found that his system met with disapproval in the council school to which he was attached.

In secondary schools (p. 68 *ff.*) we notice an external improvement claimed in a simplified form of inspection and in a better planning of school buildings. A comparison of a grammar school built fifty years ago with one of the latest schools described in the report ("Some Types of Secondary Schools")

of the Middlesex Education Committee will show what progress has really been made in this direction. It is a pleasure to note that there is an increasing number of pupils in efficient schools:

	Schools	Boys	Girls
1910-11 ...	958 ...	89,267 ...	73,954
1911-12 ...	986 ...	92,511 ...	77,311

On the other hand, it is distressing to have to record a decline of 1 per cent. in the total of students in evening and similar schools during 1910-11, a sign that the nation is not awake to the advantages of the education offered (p. 80).

In Munich elementary education is compulsory until fourteen, continuation education until eighteen in some of the fifty or more distinct classes.

Yet there is comfort in the remark—which is certainly true—that "Increase in the supply of secondary education tends to create an increase in the demand" (p. 5).

This extension, no doubt, depends partly on the number of pupils passing from elementary to secondary schools. In 1894 the number of pupils who had once been in elementary schools was about 25 per cent. By 1911-12 the proportion had risen to 60.9 per cent. (We might remark, in passing, that 95 per cent. of the German population is said to make use of the Volksschule.) The annual output of English elementary schools is about 600,000, and of these 1 in 22 goes to a secondary school, and 1 in 46 receives free education when there. The percentage of these free scholars is put at 34.8 in 1911-12.

If we could be sure that "on the age at which transfer to the secondary school should take place there may be seen a gradual approach to agreement," we should feel that the figures just given are evidence of real progress. It is little use for an elementary pupil to enter a secondary school at thirteen or above and to stay there two years or so. There is, however, only a "general tendency to encourage entry to a secondary school at about twelve or earlier." This confession of the Board is naïve, to say the least of it. For progress could be secured—so far as free placers are concerned—if the Government grant of £5 a pupil began at the age of eleven. Authorities cannot afford to give all the free places to boys under twelve on whom a grant of £2 only is paid.

The more one considers the report, the more one finds how hopeless the task of the Board is. How can the publication of a list (of which few people know) of recognised schools guide parents in their choice of a school? How can it save them from falling into the hands of knowledge shops that admittedly

only teach the subjects that pay, which parents want their children to learn in order that they may enter some blind alley occupation at an early age?

How can belief in education and in training for teachers be spread, as the Board very rightly urges, when student-teachers of a few months' experience, before even they have passed a matriculation examination, are put in almost entire charge of a form, and entrusted with the task of signing and writing as class teachers the reports of that form? Either further training after leaving school is unnecessary or the school in which a student-teacher does so much is badly managed.

How can progress be made in continuation schools when the pupils are often too tired to keep awake? Continuation schools (as Mr. Waldorf Astor, M.P., says) must be compulsory, but education in them must be given under such conditions that the boys can take advantage of it. How can technical classes flourish when students take up chemistry who are unable to work in decimals? The cure for these evils is "compulsion," horrid as the word is:—Compulsory continuation schools, compulsory leaving certificates under official control, compulsory inspection of all schools, private and public.

On reading the report with these thoughts in one's mind, one cannot help seeing how, in every direction, the various activities of the Board are brought to nought by the solid rock of parental folly, national lack of interest, and the force of circumstances.

We are at a Borgian banquet. It is the fault of the nation that no progress is made in education. The schools are there; provision has been made by the Board; the informing spirit alone is wanting. Let us enumerate a few instances that show how the Board spreads its nets.

The Board is careful that both boys and girls have equal chances, and rejoices that in 1911-12 the balance is nearly level:—"Free places numbered 6,193 (boys) and 5,750 (girls)," (p. 15). It is alive to the danger of cramming (p. 26), and sees progress in the apparent extinction of this in elementary schools. Can there be any real progress in this particular, so long as Civil Service examinations offer the prizes to the best crammed? Progress is shown (p. 35) in the increase of superannuation allowances for elementary-school teachers from ten shillings to one pound for each year of recorded service for those who have lived to sixty-five. May there be many to enjoy the allowance!

Reviews of the work of school medical service, provision of meals, physical training,

instruction in special subjects—to mention only a few branches—testify to the practical side of the dealings of the Board. Sympathetic reference (p. 43) is made to the provision of central schools; while the passing, as it seems, without regret, of one higher elementary school out of forty-one is mentioned. A decrease in the number of half-timers (p. 50) from 84,419 in 1907-8 to 70,255 in 1911-12 is absolute proof of progress. But the hesitating way in which the report (p. 83) speaks of "leaving examinations," and the prospect of substantial reforms in such matters, affords little hope of any progress in this vital matter.

The epithet commonly used to describe our present state of education is "chaotic." "The interests of the child are sacrificed to the lust of battle of the politician and the propagandist." When it is possible to find a county well supplied with schools, a town over-supplied with schools, and, on the other hand, a county that cannot properly maintain what insufficient schools it has and a town with little or no provision for the necessary grades of education, we may well speak of "the disorganised state of English secondary education."

When a child of a taxpayer is excluded from a school, mainly supported by grants provided by taxation, because it lives a yard outside the parish to which that school belongs, how can our education, which is national and not parochial, be called anything else than chaotic? When we can find an area in which one authority controls the technical school, another the grammar school, another the elementary schools, while apart from these authorities, each jealous of the other, there are private schools and a public school severally admitting no connection with any other institution, it is impossible for those conversant with education in other countries to object to the term chaotic.

Out of all these warring elements, it is the lot of the Board of Education to evolve a system. The task is well-nigh impossible! The foes of the Board are of its own house. Among the chief opponents of progress in education has stood the Government of the country. So long as adequate schools are provided, the chief need is that pupils should pass a proper time in them. The Board is anxious on this point, and is at pains to explain the reasons of an early leaving age:—"Another of the difficulties in the way of securing adequate school life is the large demand for low-grade clerical work and its popularity among many children and parents" (p. 72). Among the offenders we must certainly reckon the Government, which sets the

bad example of employing numbers of boy clerks.

It is indeed obvious that, before any real progress in education can be achieved, the "school life" must be lengthened. The report (p. 71) gives the age in averages thus:—

Periods	Leaving age		Years at school after 12	
	Boys	Girls	Boys	Girls
1907-10 ...	15'6 ...	16'0 ...	2'7 ...	2'7
1908-11 ...	15'7 ...	16'0 ...	2'8 ...	2'9

Compared with German leaving ages, nothing could be more disheartening!

Of course, when we speak of responsibility we must speak of what is. And we must lay the blame on the right shoulders. More improvements in English schools are possible—far greater liberal feeling among headmasters in the first place, less shrinking from what is new—more encouragement must be given by Government, the Board must become more scientific and less influenced by party politics, but it is parents that we must chiefly censure for our lack of progress. The shortness of school life is due to a want of belief in education in England. Till a generation arises that looks on education not only as a pecuniary but also as a moral asset, we shall not progress without compulsion, because no opportunity is given to our schools to do their work.

Had the English schoolmaster the same time to polish his wares that even the Scottish schoolmaster has, there would be progress in the most important particular, the length of school life. The percentage of boys remaining at secondary schools beyond the age of sixteen is:—

About 7 per cent. in England	
" 15           "       Scotland	
" 45           "       Germany.	

With figures like these before him the educationist can admit little progress.

To continue the paradox that the Government is an enemy to education, let us quote the remarks of the report on those teaching in the schools (p. 77):—(i) Only a small portion are trained. (ii) A large number of teachers are employed in secondary schools who are seriously deficient in professional skill.

Passing over (i)—as to which it is remarked (p. 78) that "the need of training is more noticeable than the benefits derived from training"—let us quote the report on the question of knowledge of subjects taught, which is connected with (ii):—

"Far more serious than lack of training in the vast mass of teachers is lack of scholarship" (p. 79). "Unless a man knows his subject, no amount of training can make him teach it efficiently" (p. 79). "I do not believe that . . . there is any teacher so thoroughly

inefficient as the second-rate university man" (p. 79). Who but a Government that does not pay salaries attractive to first-rate university men is responsible for the employment of second-rate?

The *A.M.A.* for May gives these figures: Average salary of assistant-masters in local secondary schools in Hertfordshire—£141 a year. Perhaps we might reckon this at something less than 2s. a working hour!

For financial reasons, too, the numbers of elementary-school teachers are falling off (p. 108):—

Period	Numbers
1909-10 ... ..	3,047
1910-11 ... ..	2,807
1911-12 ... ..	2,489

It is no sign of progress that the Board is (p. 110) considering the provisional qualification of student-teachers who have not obtained the full examination qualifications. Progress in this instance must not be a reduction of standard, but be paid for by a Government that to be worthy to govern must risk all to supply better salaries.

From the side of the secondary school little encouragement will be given to the present system of preparing elementary-school teachers until certain regulations are abolished. The student-teachers want definite work at their secondary school. But with the laudable wish to make student-teachers concentrate on their elementary-school teaching, they are not allowed to take any examination at the end of their student-teacher year.

The future teacher, who will do good work in an elementary school, is the pupil who passes his matriculation or even his "Inter." at the end of his bursar year. All cannot manage a four years' course, so it should be possible for candidates to take an examination at the end of their student-teacher year. Progress would be better insured by increasing the teaching power of training colleges than by adding to their number. Pupils sometimes have a rude awakening on entering a training college, for when they are there they find that they cannot be prepared for their degree in their special subjects owing to some weakness in the arrangements of the training college.

Wherever we look we see lack of co-ordination. With this last instance of chaos we must pass to our conclusion. Progress there is in many directions, progress in mere numbers, progress in keenness, progress in the outlook of the officials who administer education, progress in the economy of the Board, progress in the attitude of teachers generally. But while much external work has been done and much is in contemplation, satisfactory



internal progress can never be made under our present financial conditions.

Finally, in spite of numberless experiments conducted by able and devoted pioneers, in spite of the hard work of the Board, it is impossible to rear any sound structure on the bottomless quicksands that are about our present educational system.

## THE CARNEGIE FOUNDATION FOR THE ADVANCEMENT OF TEACHING.

### PENSIONS FOR TEACHERS.

THE seventh annual report of the president and treasurer of the Carnegie Foundation is a document specially interesting to English secondary-school teachers at the present time, because of the prominence it gives to the discussion of teachers' pensions. The primary object of the foundation is to provide pensions for teachers who have served their generation upon salaries which make provision for old age almost impossible. But the trustees have found themselves unable to discharge their duties adequately without some investigation of educational conditions in the United States and Canada, and so they have devoted a small proportion of the income to the promotion of certain educational studies, and the publication of the results.

The Carnegie pensions are bestowed only upon teachers in colleges and universities, not upon teachers in schools; and since colleges and universities in America are often mere shams, every institution has to be specially recognised for the purpose. Moreover, the terms of the gift have precluded the trustees from acting upon some of the principles which in their view should govern any general system of State pensions. Nevertheless, they have in the course of their labours been compelled to review the whole subject, as it affects both the State and the school, and they have summarised the results in this suggestive report.

The report rightly points out that before we can hope for the best results in education—and this is as true of England as of America—we must make possible a career for an ambitious man.

To do this, dignity and security must be given to the teacher's calling, and probably no one step could be taken which will be more influential in inducing able men and women to adopt the profession of the teacher in the public schools than to attach to that vocation the security which a pension brings.

Even if it could be shown that the teaching profession is attractive enough without pensions, yet there remain unanswerable argu-

ments in their favour. Social justice demands some protection for old age and disability when society desires to obtain from the teacher a kind of service quite out of proportion to the pay which he receives, or is likely to receive. Moreover, pensions are an elementary condition of efficiency in a school system, because they provide a humane method of retirement for outworn teachers, who, if they remain, remain to the direct injury of their pupils.

In the light of the experience of existing pension systems in America, in England, and on the continent of Europe, the report discusses various other questions. Should the expense be borne wholly by the State, wholly by the teacher, or jointly by both? If jointly, in what proportions? What should be the retiring age? Should the pension be a "subsistence" or a "stipendiary" pension, *i.e.*, should it be based on the principle of mere protection from actual want, or should it represent a sufficiently adequate proportion of the active pay to enable the pensioned teacher to maintain a plane of living approximating to that to which he had been accustomed? To these questions the report returns definite answers based upon a wide survey of facts. The system should be contributory; the teacher should bear half the cost of the annuity and the State the other half; the retiring age should be sixty; the pension should bear a definite proportion to the salary at the time of retirement, the proportion suggested being one-half. Such, in brief outline, are the conclusions arrived at.

We need not dwell at length upon the strictly educational issues discussed in this report, because most of them are of peculiarly Transatlantic interest. We may, however, observe, as a matter of very general interest, that the task of compiling a list of "accepted" colleges and universities has necessarily led the trustees to discriminate between the widely different institutions which go by these names in America. The section on sham universities contains some astounding facts, and makes one think that, after all, some things are not so badly done in the old country. "It is surely," says the report, "the duty of good citizens to prevent the exploitation of innocent people by fraudulent and ignorant associations of promoters, working behind the corporate title of a college or university." Equally astonishing are many of the facts set forth in the paper on advertising as a factor in education. Indeed, not the least beneficent result of the Carnegie Foundation would seem to be its incidental exposure of sham and pretence in American education.

RURAL ELEMENTARY SCHOOLS.<sup>1</sup>

By W. A. BROCKINGTON, M.A.

Director of Education to Leicestershire County Council.

ON few educational subjects have I encountered during the past ten years greater diversity of opinion than on that of education in our rural elementary schools.

I have known those who have advocated what amounts to no education at all, save for the pupil of exceptional ability who may be expected to migrate into the town, as if rural occupations were entirely unintelligent. Others with greater breadth of mind would introduce into the schools a utilitarian curriculum which might train an agricultural labourer, but, through ignoring the great human fact that man is a thinking animal, would deny him a large measure of his birth-right.

I believe that both these phases of opinion are wrong and dangerous, but at least equally wrong and dangerous is the opinion of persons of the opposite extreme who profess to discover in a system of education a cure for all the mischief of rural life and in particular for rural depopulation.

The first two classes of persons fail to realise the elementary fact that education is not the acquisition of information, nor of mere facility, whether mental or mechanical, but that it is a development of adaptability and intelligence. Intelligence and adaptability cannot be trained except in strict relation to the environment of a pupil, whether that be of town or country. They cannot be fully developed by teaching him a specific trade or occupation. It is not more appropriate to introduce practical agriculture into the curriculum of a rural elementary school than it would be to introduce shorthand, book-keeping, office routine, or the myriad occupations of town children into the curriculum of an urban elementary school. But it is of the highest importance that the curriculum of both kinds of schools, seeing that their purpose is to train intelligence and adaptability, should be in sympathy with the conditions of life of the pupils. In rural elementary schools this consideration has some economic bearing. That teaching which is in sympathy with the early proclivities of the children is less likely to divert their minds from rural occupations, or to encourage them to set a low comparative estimate upon such occupations, than the teaching which is purely mechanical and formal and not related to country life. But with the solution of purely economic problems, the wage problem, the housing problem, and

the land problem, education is only indirectly concerned. Nor is education likely to make great headway against the psychological causes which are responsible for rural depopulation, including the desire for change, the human inclination to congregate, the restlessness caused by the more varied life of the town, of which the dress and manners (often bad manners) invade the country.

In so far, then, as rural prosperity is dependent upon economic conditions and such habits of mind and natural inclinations, education is only indirectly concerned with rural problems. But in so far as rural prosperity is dependent upon the adaptability and intelligence of the population, education is very intimately concerned with them. We have continually to remind ourselves and others that rural occupations, which still constitute the staple industry of this country, are not unintelligent occupations, are not solely dependent upon the mechanical application of rules of thumb, or upon inherited instinct, or upon the faculty of imitation, but that they demand independence of thought. Not only can the elementary school assist in laying a solid foundation of practical knowledge among the men, and of domestic skill among the women, but it can so encourage the instinct of keen observation and original research which is natural to young children that this instinct will develop later into a really scientific habit of mind. While, therefore, we should be strictly on our guard against those who make exorbitant claims for rural education, there is all the greater cause, if we take a reasonable view of our opportunities, that we should make a reasonable use of them.

The least observant among us could scarcely fail to detect the radical changes which have been introduced into the teaching of our rural schools during the last ten years. The greater liberty which has been accorded by the Board of Education to the teachers and to the education authorities of this country since the year 1895 has nowhere borne richer fruit than in the reform of rural elementary education. There is no doubt that under the older education codes too much attention was given to the mechanical acquisition of information and to purely literary studies, and too little attention to the development of manual skill, to the application of knowledge, and to the training of the intelligence and adaptability of the pupils.

But during nearly twenty years in this country it has been possible to introduce methods of teaching which are in harmony with the natural proclivities of the pupils, to concentrate upon the application of knowledge, to base the acquisition of knowledge upon ori-

<sup>1</sup> An address delivered before the Leicestershire Chamber of Agriculture on April 5th.

ginal investigation, to teach the manual arts, and to associate the teaching even of the three R's with the real interests and occupations of children, whether in town or country. This is summed up by saying that in country schools it has been possible to impart to education a rural bias. To say that new subjects have been forced into the curriculum would be somewhat misleading, seeing that nature study, school gardening, domestic science, and manual work have in the majority of schools been successfully correlated with the teaching of English composition, reading, and arithmetic. Without such correlation it is indeed impossible to base your teaching upon the actual experience of the scholars, and thus be successful in training their intelligence and adaptability.

The fundamental requirement in a rural elementary school is that a teacher should have some interest in the study of nature. To an older person the occupations of teacher and children engaged upon nature study might appear trivial. But it must be remembered that of all habits, the habit of observation, by which we mean the power of seeing with the mind as well as with the outward eye, is one of the most important, whether in town or country, and is, moreover, the habit which a purely formal school curriculum will not merely fail to develop, but actually retard and stultify. The older skilled farm labourers and shepherds were men of observational genius, and we can develop this kind of genius in their children only by ministering to their natural keenness for discovery. Moreover, the habit of discovery, if properly trained in childhood, becomes the higher scientific habit in youth and middle age. Nature study means training the child to observe what he might otherwise see around him every day and ever fail to see. In so doing, we are merely following his natural bent and inclination, and working strictly in harmony with his natural proclivities. In many of our school-rooms to-day, processes of nature both animal and vegetable may actually be seen in operation; plants that illustrate the various contrivances for the dispersal of seeds and fruits are successfully cultivated, diaries of weather and of natural changes are kept by the children, nature talks are given, in which the teacher is himself a learner and investigator, and not a pedagogue beating knowledge into the heads of his pupils as he might stuff the crops of prize poultry. And by such a process not merely knowledge is inculcated but reverence too.

Furthermore, it is possible to connect the teaching not merely of practical but of cultural subjects with such forms of nature study. Thus it has been found that drawing may be

taught without reference to plain copies, that drawing may be quite utilitarian in its aim and still train the eye and the hand, and be a cultural subject. Nature study is incomplete without drawing from nature, while the manual arts are incomplete without scale drawing, and without the ability to sketch rapidly from memory tools and implements and common objects. This is all the drawing that is necessary or desirable in a public elementary school, and is strictly associated with rural life and occupations. More obviously still the writing of English essays may have a rural bias; and in the choice of literature, both prose and poetry, which the children may read and learn, there is opportunity afforded for including that which appeals to the imagination and brings before them other phases of human life and activity, as well as that which is directly associated with their original investigations of nature. The subject of geography in a public elementary school properly begins with an intelligent interest in the actual surroundings of the children. And there is no subject, as Mr. Dymond reminds us, which more needs adapting to rural life than arithmetic. And, indeed, as regards no subject in the rural school has greater progress been made recently than in the teaching of arithmetic. In the best schools it is definitely associated with actual life and with practical work of all kinds. It has a real meaning for the children. A sum in arithmetic is no longer an abstract difficulty of no mortal significance, but an essay in figures.

I was reading the other day an article by an eminent Frenchman, who advocated a practical training in farming for all rural teachers, not on the ground that they should be required to teach practical farming to young children, but that they should be, by reason of their own education, in sympathy with the early proclivities of their scholars. I have heard country-school teachers derided, mostly in London committee rooms, as being entirely out of sympathy with rural needs. But when I came to take stock of the actual teaching power possessed even by one single county I was amazed at the amount of specialist knowledge bearing upon rural occupations which was available for the education of the children. Moreover, the truth of a remark made in a recent memorandum of the Board of Education was fully borne out in practical experience:

Often enough when he commences, the teacher is conscious that he is only partially master of what he sets out to do; but by maintaining for himself the spirit of inquiry, and by learning along with his children, his powers and his courage develop.

This brings me to the more distinctively practical side of rural education, the teaching

of gardening, cookery, woodwork, and other manual arts. As to the real educational value of these subjects, considerable misapprehension still exists. The object of a school garden is not merely to teach boys how to grow a few vegetables, which they might learn to do on their father's allotment. The object is to lay the foundation of a scientific habit of mind, and to teach something of the principles that underlie all cultivation of the soil. Where the instruction in school gardening is undertaken by the schoolmaster under the advice and supervision of a competent expert, it becomes part of the ordinary school routine, and it touches at some point or other every other subject in the curriculum. This is the ideal school garden as described by Dr. Robertson, the famous Commissioner of Agriculture for the Dominion of Canada, where each child has his own small plot, "which he uses like his slate, putting things in it and on it, and rubbing them off again, not for the sake of the things, but for the sake of the child's growth in knowledge and mental ability." Even from the purely utilitarian point of view, is it not true that the handy and resourceful workman is usually a good gardener? And the converse of this proposition is also true.

In this respect during the past decade there has been considerable progress. Between 1902 and 1908 the number of school gardens in England increased from 349 to 1,505, and the number of scholars under instruction from 5,501 to 24,316. There is no doubt that the subsequent increase is even greater; but the Blue Books for the later period are not yet available.

Again, in many English schools, gardening, cookery, and household arts are taught by the regular school staff. In some instances woodwork is taught either at the desk or in a small workshop, where the boys, after doing their measured drawings in school, can go and make things. But for the most part the teaching of cookery and woodwork is at present of a more formal character; and we are still largely dependent upon visiting staffs. The time, however, will come when a thorough training in practical arts will form part of the education of all rural teachers. For it is the experience not only of our own country but of all countries in the world which convinces us that these are the proper lines of development for rural teaching. The work of the school is thereby rendered more vivid, the interest of the scholars more lively; not merely is there gain in manual dexterity, but in mental dexterity also; the foundation subjects are invariably benefited; and, last but not least, children who seem dull and backward at their books are brightened and encouraged when they perceive the rela-

tion of what they are learning to the practical life around them.

It is, however, impossible to realise the profits of education as one may realise the profits of business from day to day; and this sometimes makes business men impatient of educational experiment. The race is to those who do not stoop to gather up the golden apples as they run.

### PRACTICAL CONSIDERATIONS IN THE TEACHING OF MATHEMATICS.

By J. A. BINGHAM, B.Sc., B.A.  
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THERE are three aims which the teacher of mathematics has before him in his work:—

- (1) The training of the reasoning powers.
- (2) The training in accuracy of thought and expression.
- (3) The imparting of a knowledge of certain facts and principles which can be applied to problems in the business of life.

Formerly the first two of these were made the chief or only guides, the third sometimes creeping in, but treated as of small consequence.

As a result it was held that no mathematical principle was ever to be employed which could not first be established. A student was not to use logarithms until he could calculate them, nor the binomial theorem until he could deduce the expansion, and so on. Yet how many, even in those days, made excellent use of these facts who, if asked to do so, would have been quite unable to calculate the one or prove the other without the help of a text-book!

Moreover, it is unnecessary. A man may drive a motor-car well enough without being able to make one. He will know how to drive it at its best speed, or most economically, and will not attempt to make it do things for which it was not intended. Similarly, in using a mathematical principle three things only are necessary:—

- (1) A clear perception of its truth.
- (2) A knowledge of its application.
- (3) A knowledge of its limitations.

If more than this were demanded, why should not the same be required of all forms of argument? What would then become of our politicians? It is not given to any man to know all of even one subject, and when he has to talk and reason upon many, he is bound to take some things for granted and to make use of hypotheses established by others.

Further, the training of the reasoning powers can just as easily be attained by the consideration of practical, as of unpractical

hypotheses. More easily indeed, for the presence of a definite practical purpose would provide a stimulus to the imagination which would help the reason. Such a course would, moreover, tend to broaden the principles of teaching, bringing them more into touch with real life, and also tend to better the none too good opinion which some people hold of the teaching profession.

Finally, the demand for the logical establishment of all facts and principles necessitates a great waste of time and labour. It deadens the interest of the young pupil. It curtails the syllabus, making it impossible to teach many things useful, interesting, and of great educational value. For example, the elementary properties of the parabola, ellipse, and hyperbola, and simple cases of differentiation and integration, would be a desirable addition to the syllabus, and all could be taught by graphical methods without the elaborate introduction that is usually considered necessary.

Let us assume, then, that while the first two aims are not to be neglected, the third should be paramount. How are the syllabus and the teaching to be modified to accomplish this?

To begin with, the three-fold division of mathematics into arithmetic, algebra, and geometry, with sharp lines of demarcation, is a mistake. This separation is not so decided as it was, yet in many schools and with some examining bodies the three divisions are kept quite distinct, while they are really different ways of expressing the same process, and should necessarily be considered together. Why should multiplication be taught three separate times, in the arithmetic, algebra, and geometry lesson? What difference is there between adding  $\frac{1}{2}$  to  $\frac{1}{3}$  and  $\frac{1}{x}$  to  $\frac{1}{y}$ ? Is there no

connection between arithmetic, algebraic, and geometric proportion? When dealing with surds why not take their geometric representation? A much more natural division of the subject would be: mechanical processes, ratio and proportion, solution of equations, graphical mathematics, and mensuration, although even then the sections would still be very interdependent.

With regard to mechanical processes, the first reform needed is the elimination of quantities containing more than six significant figures. It would obviously be absurd to give the distance of the sun from the earth as 91,160,287 miles; for, in the first place, it is impossible to measure the distance to that degree of accuracy, and secondly, it varies at different times of the year. It is equally absurd to express a weight as 29 tons 12 cwt. 7 lb. 4.5 oz., for no machine could measure it; 99.9 per cent. of numbers representing practi-

cal quantities cease to be of value after the fourth significant figure, and to give more is misleading as well as incorrect. Consequently, approximations and contracted methods should occupy first place early in the syllabus. The latter, when properly carried out, are a real saving of labour, though the methods adopted in many text-books are unsatisfactory both in working and in principle. In this connection it may be remarked that many of the problems usually set, which have a numerical solution, are so arranged that after elaborate cancellings and reductions an integral answer is obtained. So common is this that the student, when he meets with one which does not reduce in this way, often becomes lost in a maze of figures, and arrives at a hopelessly wrong result. Problems which occur in actual practice rarely submit to much reduction, providing, as a rule, much more scope for the use of contracted methods.

Much time might also be saved if complicated fractions and factors, and also elaborate methods of finding H.C.F. and L.C.M., were left out of consideration. They need never occur in practical applications, and are a sort of mental exercise which leads nowhere. For the same reason algebraic expressions dealt with need never be of a degree higher than the third unless they can be expressed in such a form. Further, examples on indices ought to be confined to the simpler cases, but should lead directly to logarithms as a useful application.

In ratio and proportion there is a great deal of misdirected effort in teaching the special forms of solution of different types of arithmetical problems, such as stocks, interest, proportional parts, work, time, and distance. Mathematics is the science of measurement; all measurement gives either an equality or an inequality, that is, an equation or a ratio, sometimes both, as in proportion. If this would be recognised, and all examples reduced to the one form, a great saving of time and of laboured thought, and a great simplification of expression, would be accomplished. The different types of problems would then become applications of the same principle, and could be solved by the pupil himself, provided he understood the terms employed, without needing to be shown a particular method. An additional advantage of such a proceeding would be the training of the pupil in independence and originality of thought. He would realise that he is expected to attack new types of problems. We should not hear so often: "I have never been shown how to do this." Altogether it seems a mistaken practice to spend a series of lessons on one type of problem, or to give a long succession of these to be solved.

With regard to graphical work, this has occupied a much more prominent place in the teaching of mathematics of late years, and deservedly so. But still more use might be made of it. Everyone knows how well it expresses the variation of one quantity with another, maximum, minimum, and limiting values generally. With the extra time at one's disposal that would be allowed by the modifications of the syllabus mentioned, it would be possible to consider rates of increase, simple cases of quadrature, or the summation of small areas, and so obtain some idea of the beginnings of differentiation and integration. At the same time the graphical representation of quadratic functions could be employed to demonstrate and investigate the more important properties of the conic sections without attempting to enter on a course of analytical geometry.

In the classification used above, mensuration would include the whole of what is now called pure geometry, but treated, of course, from a practical point of view. In this part of the subject more than any other has time been spent uselessly in the past. Hours have been wasted in studying and proving properties of little importance which could have been employed in considering those of practical value. Looking upon geometry as the study of the forms of figures and solids with a view to the discovery of their properties, it will be recognised that these can never be exhausted for any one figure. Some properties are more involved or less fundamental than others, and these are usually the most obvious or the most easily proved. Consequently, they should be considered for all figures before proceeding to the less obvious and the less important. For example, the properties of similar triangles would be considered in teaching proportion. This would at once lead to the definition of the trigonometrical functions and their use in the measurement of angles. Then, along with Pythagoras' theorem would be taken the corresponding theorem for any triangle. The solution of triangles would follow at once, since only two facts are needed for this, viz., that the sides of a triangle are proportional to the sines of the opposite angles, and the general case of Pythagoras' theorem. There would be no loss of logical training or logical sequence, for all these properties could be proved, and then used to discover other properties as required. In fact, there would be a considerable gain, for the pupil would have more data to use, more tools to work with. The old method reminds one of Robinson Crusoe, who had to build a boat, possessing only an axe and a knife for tools. He managed it, but the result was poor compared with that which

would have been obtained with the resources of a joiner's shop.

To conclude. In these suggestions which have been put forward I venture to claim that three desirable results follow. In the first place, means are afforded of extending the mathematical syllabus in secondary schools. Secondly, the work is made more practical and useful, without any detriment to the future work of a student who continues his study of mathematics at the university; for those parts of the subject which have been omitted or neglected are only put off to a time when they will present little difficulty to him. Lastly, the subject is made more interesting, more real, more living to the ordinary mind not specially inclined to the study of pure reasoning, the mind of one who, formerly, lost both himself and his interest in the subject.

#### PERSONAL PARAGRAPHS.

**M**R. CROSS, who has gone from Peterborough to Maidstone, has been succeeded as headmaster of King's School, Peterborough, by Mr. A. W. Annand, formerly a master at Wellington College.

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**MR. G. W. DUNN**, a master at the Grammar School, Stourbridge, has been appointed headmaster of the Saffron Walden Grammar School.

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**MR. D. G. SCHULZE**, of Uppingham School, has been appointed headmaster of Kelvinside Academy, Glasgow.

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**MR. JOHN HUCK**, senior science-master at St. Bees' School, Cumberland, has been appointed headmaster of the Stationers' School, Hornsey, in succession to Mr. Chettle. After eight years' experience in private schools and three at Hertford Grammar School, Mr. Huck took a First Class in Part I. of the Natural Science Tripos in 1904; he then went to Berkhamsted as a master, leaving to go to St. Bees in 1906.

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**MR. R. F. CHARLES** will retire at the end of the present term after nearly forty years as a form master at the City of London School. Mr. Charles has for many years been a member of the council of the College of Preceptors, and an examiner for the College. The Joint Scholastic Agency and the Joint Agency for Women Teachers, and the many masters and mistresses who thereby secure appointments without unnecessary cost, owe him a debt that no one who has not worked with him on either of those committees can

realise. These are but instances of his quiet, unassuming work for the well-being of the poorer members of the profession that he has so long adorned. The best wishes of all who know him will go with him in his retirement.

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MRS. STANLEY BOULTER, better known as Mrs. D'Oyly Carte, died at Savoy Court on May 5th after a long illness. Her ability in matters of business and finance, her management of lecturing tours, her work in connection with the Savoy Hotel and the English Opera House (now the Palace Theatre), are matters of common knowledge, but few remember that her earliest work was scholastic. When quite young she showed marked ability, especially in mathematics, and was one of the first women to take advantage of the opening of London University to women. She then became a teacher, but, finding the work uncongenial, gave it up for the stage.

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MR. R. W. HINTON, for thirty-four years headmaster of the Haberdashers' Aske's Hampstead School, died on Friday, May 9th, at the age of sixty-nine. Mr. Hinton had previously served ten years as a master. He took an active interest in the work of the Teachers' Guild, the Headmasters' Association, and the University of London. For nine or ten years he was treasurer of the Headmasters' Association; at the University of London he was a prominent member of Convocation and of its standing committee. In the committee he was one of the very few representatives of secondary education. His old pupils, and, indeed, every one who met him, in whatever capacity, will hear of his death with sorrow, for his geniality and kind-heartedness endeared him to everyone.

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THAT the Cabinet Committee which is considering the new Education Bill of the Government has consulted men who were not even Members of Parliament called forth some comment and suggested that education was at length to be considered, and not merely its political aspect. The satisfaction felt by educationists is greatly increased now that it is known that among those with whom the Cabinet Committee has conferred are Mr. Arthur Acland and Mr. M. E. Sadler.

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EVERYONE engaged in, or interested in, education recognises in both men true friends of education. There are no two men who know more of the organisation, history, and practice of education in this country than they. Striking proof of the complete confidence of

all kinds of teachers in Mr. Acland was given in his unanimous election as chairman of the Teachers' Council. On that council, it will be remembered, are eleven university teachers, eleven secondary-school teachers, eleven elementary-school teachers, eleven technical and specialist teachers, and every one of the forty-four cast his vote in favour of Mr. Acland's chairmanship.

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THE Warden of Glenalmond, Canon A. R. F. Hyslop, has resigned and will leave Glenalmond at the end of the summer term. Mr. Hyslop was educated at St. Paul's School and King's College, Cambridge. After two years as a coach and lecturer at Cambridge, he went to Harrow as a master in 1892. In 1902 he became Warden of Glenalmond.

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SIR CHARLES ALDERSON died on May 2nd. That part of his career of most interest to readers of THE SCHOOL WORLD is his long tenure of office as a school inspector. The passing of the Act of 1870 brought him to London to take charge of one of the divisions into which it was then divided. Marylebone fell to his lot, and proved one of the most important and most difficult on account of the number of excellent, well-supported denominational schools it contained. "The Department, under the direction of Forster, were anxious that they should not be exposed to ruinous competition with the new schools provided and maintained by the rates. Some maintained that every child ought to have, within easy reach of its home, choice between a denominational school and an undenominational school. The Department was guided mainly by Alderson's advice. His knowledge of the district was full and detailed, his style of writing was simple and lucid, and his impartiality was never questioned."

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THE REV. GEORGE PRESTON, formerly headmaster of the King's Cathedral School, Chester, died on May 11th. Mr. Preston's father was headmaster of Whalley Grammar School; Mr. Preston was educated at Shrewsbury under Dr. Kennedy, and at Cambridge, and was in 1865 elected a Fellow of his college. For some years he was sixth-form master at Shrewsbury, and held the headmastership of the King's Cathedral School, Chester, for thirteen years. After leaving there for the benefice of Great Fransham, he prepared pupils with conspicuous success for classical scholarship examinations at both Oxford and Cambridge.

THE REV. H. W. PATE died on May 17th, at the age of sixty. From 1870 to 1876 Mr. Pate was a master at Cranleigh School. In 1876 he became headmaster of Bristol Cathedral School, an appointment he held up to the time of his death. ONLOOKER.

## CAMBRIDGE LOCAL EXAMINATIONS, 1912.

### HINTS TO TEACHERS FROM THE EXAMINERS' REPORTS.

**COMPULSORY SECTION.—Arithmetic.**—The most striking features of the answers of *Preliminary* candidates was the extreme carelessness frequently shown. The statement of the interest questions showed some improvement. General weakness was shown in the answers on the metric system and on percentages. Very little attention seemed to have been paid to method.

Among the faults noticed in the case of *Junior* candidates were a want of knowledge of the required tables in several cases, the omission of steps that could not have been obtained mentally, and injudicious working by decimals instead of by vulgar fractions or *vice versa*. In the December papers there was considerable inaccuracy in the simplification of both vulgar and decimal fractions.

In the December examination many *Senior* candidates made the mistake of confusing square measure with cubic measure in calculating a volume.

**ENGLISH SECTIONS.—English Grammar.**—The parsing of *Preliminary* candidates was weak throughout. The sentences set for analysis seemed to be too hard for many candidates, who had only vague ideas of what was required of them.

Many *Junior* candidates were unable to apply their knowledge accurately or express it clearly. The parsing was only moderately good. Many were uncertain as to the meaning of weak and strong verbs. The analysis was generally well done, but the nature of the sentence was often not stated. Candidates appeared to find difficulty in composing an adjectival phrase and in distinguishing between a gerund and a participle.

In *English Composition* the great majority of the *Preliminary* candidates reproduced the story read to them with commendable accuracy, and, as a rule, mistakes in grammar were rare. In too many cases, however, candidates strung together a number of co-ordinate sentences without any words to indicate that there was any connection between them, and the use of the introductory "so" is still too frequent. The spelling was in most cases good, but the punctuation was decidedly bad.

Punctuation, still a weak point with *Juniors*, had received more attention. Among both boys and girls the colloquialism of "you" for "one" was too frequent.

The work of some *Senior* candidates was worthless and indicated a lack of attention to the subject. The chief faults were bad spelling, irrelevancy, a tendency to verbosity, the statement of mere trivialities, a lack of proportion, and the too frequent use of ex-

clamatory sentences and rhetorical questions. In the exercises, as in the essays, the punctuation was defective. A large number of candidates did not know the simple uses of the comma and the full-stop. The letters were satisfactorily composed by many candidates, but frequently lacked the proper forms of address and conclusion. Few candidates were able to express really well the substance of the passages set for condensation. In very many cases the point was entirely missed, although the passages presented no unusual difficulty. Comparatively few candidates were able to indicate correctly either the pronunciation or the meaning of certain words.

In the answers of *Junior* candidates to questions on Shakespeare's "Henry V.," the renderings of a passage into modern English prose were, on both occasions, seldom satisfactory. In July, however, the number of candidates, mostly boys, who made no attempt to quote a passage was unusually large. Punctuation, too, was in many cases very faulty, or altogether disregarded; in December it was more generally attended to.

Questions on Scott's "Lady of the Lake" which required historical knowledge were omitted by many *Junior* candidates, and satisfactorily answered by only a few.

In the answers of *Senior* candidates to the *English Literature* questions, little was known of the general features of seventeenth-century literature; as often as not it was confused with the literature of the following century, and attempts to illustrate by quotation the qualities of certain well-known poets were for the most part unsuccessful. Many of the candidates noted the characteristics without attempting to show how they were exemplified in the passages chosen.

The work of *Junior* candidates in *English History* was mediocre. In July the answers were, on the whole, far from satisfactory, being often of a vague and confused character. Neglect of chronology was responsible for serious errors. Not only were dates wrongly given, but, even in answer to questions in which they were supplied, circumstances and events were described which belonged to an entirely different period. In December candidates often added entirely irrelevant matter, thereby showing failure to grasp the real bearing of the questions. There were again many instances of historical confusion, and a marked ignorance of the meaning of familiar terms.

The principal defects which revealed themselves in the answers of the weaker *Senior* candidates were: (1) irrelevance; (2) a tendency to substitute narrative for discussion, where the latter alone was asked for; (3) confusion as to the sequence of events; (4) ignorance of the more modern periods of British history; (5) addiction to the use of slang.

In the *Geography* answers of *Junior* candidates, the definitions of geographical terms were very weak. In July questions on the regions deficient in rainfall in North America and the African deserts were poorly answered, but the fauna and flora of Africa were well described. In December, the question on the approximate distance between given places produced very various estimates, often implying a total ignorance of the real meaning of latitude.



Many *Senior* candidates did not realise that illustrative sketch-maps were required. Answers to questions on climate were, as usual, weak. The significance of the term "Mediterranean climate" was understood by very few. At both examinations there were many instances of the misuse of simple but essential terms.

CLASSICAL SECTION.—In Latin, in set books the general standard of work of the *Juniors*, both in July and in December, was only moderate. There was great weakness in the translation of passages of *oratio obliqua*, especially in Cæsar. The subject-matter of the Virgil was well known, but candidates should study their Cæsar with a map before them; the Rhine and the Rhone, for instance, were often confused. In July more than one-fifth of the candidates took one or both of the alternative unprepared passages, often with very poor results; in December the proportion was somewhat less. As a rule, whenever the Latin order of words departed from the English order, candidates were hopelessly at fault. The answers to the questions on grammar were more satisfactory in July than at the December examination, when there was evidence in the work of several centres of hasty or unintelligent teaching. Candidates (especially among the boys) were unable to write what they knew only by ear, and even paradigms of regular inflexions were comparatively seldom set out without mistake. In December the simpler sentences were, generally speaking, fairly well translated, but the inability to cope with a period of several clauses was almost equally marked. Disregard of the most ordinary syntactical rules was the main cause of failure in both examinations. There was still too much sheer guess-work in many of the weaker papers from the girls.

A good many *Seniors* failed to analyse and construe correctly the longer sentences, the subjunctive mood frequently proving a great stumbling-block. The subject-matter of the books chosen had on the whole been well prepared, but the answers on the syntax too often lacked clearness and precision. The style of the renderings was seldom of much merit, and in both accuracy and style the work of the Colonial candidates was markedly inferior to that of the rest. The easy passage of unprepared translation was not well done: though good and careful renderings occurred, they were rare, and a large proportion of the candidates only just escaped failure. The Latin prose was attempted by far too many candidates, some of whom lacked the knowledge of syntax and accidence requisite to compose the simplest Latin sentence: many, too, attempted the harder piece of English who were totally unfit for it.

MODERN LANGUAGES SECTION.—*French*.—The *Preliminary* candidates were very weak in their knowledge of the verbs. The translation from French into English was quite good in July, but in December there was a decided falling off in this part of the paper, and the number of unintelligent mistranslations was very large. Translation from English into French was, with few exceptions, of poor quality in both examinations. In a large percentage of cases

the sentences given in answer to questions in French were very inaccurate and often incomplete.

Relatively few *Junior* candidates failed to grasp the general sense of the passages set for translation, but many did not trouble to revise their translations. The main stumbling-blocks in both examinations were idiomatic turns and distinctions of tense: few candidates clearly distinguished between the imperfect and the simple past tenses. Nevertheless in a fair number of cases the passages were rendered into idiomatic English. The translation of the short English sentences was, as usual, poorly done; too many candidates appeared to be unable to put verbs in the plural or to use any but the present tense.

The chief defect of the *Juniors* in *Spoken French* was a certain lack of intelligence and want of life. The pronunciation was fairly good. The candidates usually understood readily the questions put to them, but showed little power of any connected conversation in reply. A constantly recurring mistake was the confusion of the tenses; a present tense was often used indiscriminately with the past in the same sentence, regardless of the sense. The vocabulary of the candidates was sometimes very limited. The failures in dictation were usually due to mistakes proceeding more from carelessness and inattention to the sense of the passage and ordinary rules of grammar than to actual ignorance of the words.

The answers of *Senior* candidates on word-formation, although they were better than on previous occasions, were still very weak. In the translation of the harder passages the work in July showed a considerable falling off as compared with that of the previous year, and the standard reached was, on the whole, unsatisfactory. The merit of the composition varied a great deal in different centres, but the general standard attained could not be considered satisfactory. Candidates made frequent blunders in elementary grammar and in the use of tenses; the free composition in particular was very incorrect. Much might be done towards reaching a higher level, if candidates gave more attention to revising their work, for many mistakes were probably due to mere carelessness. The examiners are of opinion that the poor quality of the composition may to some extent be traced to that neglect of a thorough grounding in the necessary rudiments of accidence which the misapplication of the "new methods" has fostered. In *Spoken French*, the pronunciation of the *Seniors* often was faulty. Most candidates understood well what was said to them; there was, however, a marked inability to keep up any sustained conversation or to describe connectedly an incident in the prepared book. Many candidates, who spoke with some fluency, were very inaccurate in their grammar, and constantly confused the tenses.

MATHEMATICAL SECTION.—*Geometry*.—Comparatively few *Preliminary* candidates reduced a polygon to a triangle of equal area; still fewer found the area of the triangle. In many cases constructions were spoilt by the use of pencils not properly sharpened for compass work and ruling. A question on the diameter of a section of a sphere was generally not understood.

The theoretical work was weak; propositions on the congruence of triangles were not well done, a large number of the candidates writing nonsense; many more were able to prove easy riders than to prove the propositions. A large number of different proofs of the proposition "if two angles of a triangle are equal, the opposite sides must be equal" were given: very many were worthless. Neither the proof of Pythagoras's theorem nor the exercise on it was attempted by many candidates.

In July many *Junior* candidates showed that they had not grasped the conception of a geometrical locus. Practical constructions were generally drawn accurately and neatly, but explanations of the steps were often inadequate and sometimes seemed to have no relation to the method actually adopted. In December riders involving numerical calculation were seldom well done. In the advanced part of the paper few candidates made intelligent attempts to do the riders. The work of the girls in the advanced part of the paper was generally poor at both examinations.

In many cases, however, little or no attention appeared to be paid by *Senior* candidates to logical order, theorems being assumed which were clearly subsequent to those which had to be proved; some assumed the congruence of two triangles from the equality of two sides and a not included angle.

In *Algebra*, many *Preliminary* candidates were unable to work correctly questions involving the simplification of fractions, and very few attempted the problems with success. In part ii. scarcely anything was done by most of the candidates except finding the highest common factor of two expressions. The questions on graphs were practically unanswered. The work of many of the girls showed considerable weakness even in the elementary parts of the paper.

The second part of the *Junior Algebra* paper produced few good answers, and, as in previous years, the candidates showed little knowledge of principles. In both examinations the most common mistakes were in the simplification of fractions, and the solution of literal equations. The work in graphs was very uneven: some of it was excellent, but in December most of the candidates were content to plot only points arising from integral values of the variable. The elementary problem in July was generally well done, that in December was frequently misunderstood. In the more advanced part of the paper considerable confusion of thought and method was shown in the solution of equations. The problem in July was done better than that in December. The work on permutations was again poor. Many candidates attempted some simple questions on logarithms, but nearly all their answers showed ignorance of principle and inaccuracy in working.

Equations with literal coefficients were not well handled by the *Senior* candidates in July, but in December there was considerable improvement. The problems were solved better than usual, and the graphs were often quite well drawn, but many candidates did not attempt to make any application of their graph. The questions on the use of logarithms were

well done by the boys; but many of the girls did not attempt them, and when they did so their work was often unsatisfactory; marked weakness in the use of logarithms was shown also by candidates at Colonial centres.

Questions on the theory of *Trigonometry* were not well answered, but identities were proved by most of the *Junior* candidates in July. A question which consisted essentially of the determination of one of the trigonometrical ratios in terms of another ratio of the same angle produced many incorrect results in December.

**NATURAL SCIENCES SECTION.**—In *Theoretical Chemistry*, the general standard of the work of *Junior* candidates, compared with that of the two preceding years, showed some falling off, especially in July. In both examinations easy problems were attempted with little success by many of the candidates, and attempts to illustrate definitions of terms, which had been given correctly, often exposed ignorance of their meaning. The commonest faults of the *Seniors* were inability to compare particular facts with other similar facts, and a lack of clear reasoning on experimentally determined results. Many *Senior* candidates, too, betrayed in their practical examination a lack of power of observation and a want of acquaintance with the appearance and properties of substances in daily use. In the main, the quantitative analysis was satisfactory, but, as in previous years, too many candidates contented themselves with but one reading in the volumetric work and calculated the results therefrom. Both in July and in December many candidates successfully performed the manipulative operations, but were unable to deduce from the results obtained any conclusions of value.

In *Heat*, the answers of *Senior* candidates revealed a confusion of ideas on such subjects as radiation and reflection, critical temperature and absolute temperature. Very few candidates were able to distinguish between a vapour and a gas.

In *Physical Geography*, most of the *Junior* candidates showed a sufficient acquaintance with the meteorological side of the subject, but physical questions, such as those on islands, cliffs, and marine deposits, were not well answered. Much misconception existed as to the true meaning of such terms as *tropical* and *arctic*, and there was very commonly an indication of the cramming of isolated facts without due regard to underlying principles. More attention should be paid to the drawing of figures in illustration of answers.

Only a small proportion of the *Senior* candidates were able to give any explanation of the features of the simple type of coast represented on the map provided, or to give the method of finding the average rainfall of a district; many could name examples of British escarpments, but only a few understood the nature and mode of their origin. The characters of glacial deposits were, as a rule, described fairly well, but the features in which they differ from fluvial deposits were not generally known. Many candidates discussed the origin of earthquakes instead of describing the phenomena to which they give rise.

## THE FRENCH INSTITUTE OF LONDON.

By CLEMENT HOPKINS, B.Sc.

A NEW educational institution has made its appearance in London. In conjunction with the *Université des Lettres Françaises*, for some time past housed at Marble Arch House, Hyde Park, London, W., the University of Lille has founded what is practically a constituent college of the latter University—the French Institute of London. The new venture is only new in England, for the University of Nancy has established a French Institute at St. Petersburg; the University of Grenoble has established one at Florence; and the Universities of Toulouse and Bordeaux have established another at Madrid. It is appropriate that the English representative of these institutes set up in foreign capitals should be founded by the University of Lille, the greatest manufacturing city of northern France, the economic life of which is so similar to our own.

The scheme of study is quite in accordance with the progressive spirit which inspires the University of Lille, where the practical study of law, economics, and hygiene has received great attention in recent years. The auspices under which the institute starts foretell success. The institution is under the patronage of Princess Christian and M. Paul Cambon, the French Ambassador, while the administrative council is composed of distinguished men and women, both French and English, who are interested in the international university movement. The professor of law in the University of Lille, M. Albert Schatz, has been appointed director. During June and July the full programme of the institute will not be put into operation, but in October next the complete scheme of lectures will be given.

The institute will be divided into three departments, while the *Université des Lettres Françaises* will form a literary and artistic section. The first department of the institute will appeal to those of the general public who are anxious to gain a knowledge of French national life. Lectures will be given by professors of the University of Lille and others. The subject chosen for consideration during the academic year 1913-14 is "*La Famille Française au XIX<sup>e</sup> et au XX<sup>e</sup> Siècles*," and the subject will be dealt with from the points of view of the economist, the jurist, the *littérateur*, and the doctor.

The second department is arranged to meet the requirements of English teachers of the French language. One course of lectures will deal with French grammar, philology, and phonetics; a second with modern French authors; and a third with French institutions and social conditions. This third course has the widest scope, comprehending the Press, the executive, the legislature, the judiciary, the education system, and the great class movements.

The third department will appeal to all engaged in trade and industry, but especially to Frenchmen living in England. There will be an agency designed to bring English business men into touch with young Frenchmen desirous of studying English business methods in English business houses, and also to

enable Frenchmen living in London to study the English language, English institutions, and English economic life.

At present all the courses are in French except that dealing with English institutions in the commercial department, and the fees are quite low. Students may be prepared for French and English examinations, and certificates of attendance and of proficiency will be granted by the University of Lille to satisfactory students in certain courses.

## HISTORY AND CURRENT EVENTS.

THE most interesting event of this year so far has been the sending of a message from the present Government of China to the Christian churches of that country and of Europe to ask them for their prayers on behalf of the new Parliament. It sets our thoughts wandering over many centuries. We think of the Roman Empire in the fourth century which had persecuted the Christian Church in varying degree and at various times, and now turned to the most vital organisation in its midst to gather new strength with which to meet the "barbarian" invasions. The Church in the East did the work required of it, so far as it was not rent by schisms, and until the middle of the fifteenth century the Roman Empire existed as a territory the inhabitants of which were intensely orthodox. We think, too, of Karl the Great, whose civilisation of the Saxons was so different in method from that of modern missionaries. In Saxony, as in China, Christianity was connected with a foreign civilisation. And finally our thoughts return to China itself, and we wonder first at the events which have led to this unique event, and secondly at the possibilities of the future. China will not be Christian unless and until she adopts a form of Christianity suited to her need.

HAVE our readers been groaning under the Budget of this year? Have they hoped for a remission of 2d. of the income tax, so as to bring the figures back to the easier calculation of 1s. in the £, and been disappointed? The "estimated expenditure for this year is £195,640,000." We remember when the Opposition papers made capital for party purposes of a Budget of Gladstone in which the figure was then the unprecedented one of £100,000,000, and our reading of history reveals a century of British history, from the wars of William III. to those of George II. and III., when a national debt of any size was first a "wild experiment," and then an incubus to be got rid of at the earliest possible opportunity. The amount of that debt in 1760 and thereabouts, an amount which drove the statesmen of that time into the quarrel with the American colonies, was not much more than what is now the annual national expenditure. What will the end be? Will it go on increasing until our iron and coal give out? And when will that be? Scientific folk do not seem to agree on the point.

"GOVERNOR SULZER last April signed a Bill giving all the cities of New York State genuine home rule. The new law gives each city full authority to carry

out all the functions of local self-government, and relieves the cities from future interference by the State Legislature at Albany, except in structural changes relating to city government. It also renders unnecessary henceforth the passage by the Legislature of many special Bills, which annually clog the Legislative calendar." So the papers report from the United States of America. Is it not interesting to notice that the phrase "home rule," invented as a substitute for "repeal of the Union" by our Irish friends, has survived the taunt "home rule is Rome-rule," flung at it by those who detest what they call "the Bishop of Rome and all his enormities," and has become an ordinary English phrase? Is it not also interesting to see how "Anglo-Saxondom" is constantly developing the idea of allowing the governed a large share in the control of the government, and of effecting this by increasing local government at the expense of central?

LAST month some account was given in THE SCHOOL WORLD of the Congress of Historians. Dr. Bryce sent them a presidential address, read in his absence, and said: "Almost every part of the earth's surface except the territories of China and Japan is now either owned or controlled by five or six European races; eight Great Powers sway the political destinies of the globe, and there are only two other countries that can be thought of as likely to enter after a while into the rank of Great Powers." It would make a new and interesting examination paper in political geography to ask questions on this paragraph. Which are the six races? Which the eight Powers? Which are the two that may possibly rise? Which part of the earth's surface is controlled by each of these Powers? Meanwhile we remark on the meaning of the word "Europe." How it has grown in connotation from its early beginnings, until it now embraces most of the habitable world! America is European, so is Africa, so, too, is Australasia, though in different ways. Is it thus that, as Dr. Bryce thinks may be possible, the unity of the world will be reached?

## ITEMS OF INTEREST.

### GENERAL.

THE annual conference of the Headmistresses' Association will be held this year at the Ladies' College, Cheltenham, on June 13th and 14th. The president, Miss Douglas, headmistress of the Godolphin School, Salisbury, will preside.

THE annual conference of the Association of Teachers in Technical Institutions was held at Bradford on Whit-Monday and following days. Mr. P. Coleman, of the Northern Polytechnic Institute, London, presided. In his address, Mr. Coleman said that a technical institute cannot be said to give adequate remuneration if a principal's salary for full time is less than £500, or a full-time qualified teacher's salary is less than £160 in the case of a man or £120 in the case of a woman. The report and recommendations of the Royal Commission on University Education in London showed, he said, a bias due to a com-

plete misconception of the work and standing of the London polytechnics. In any national system of education technical education requires most help, if it is to be placed on a proper basis, and is to be able to fill its proper functions in the national economy. The need for a course of training in a technical college as a preliminary to successful work in the direction of industry is being realised more and more. If the nation is to be an educated nation a post-elementary education must be the rule and not the exception. A large extension of the system of junior technical schools is absolutely necessary if, under modern conditions, English industry is to continue to be carried on by skilled and intelligent labour. A resolution was adopted urging that an integral part of any comprehensive scheme of national education must be improved provision for technical education and the organisation of technical education by means of a definite and systematic co-ordination of the preparatory technical work in continuation schools with the technical institutions. Another resolution was adopted deprecating the placing of any limitations on existing facilities for obtaining external degrees at the University of London, expressing concern at many statements made with incomplete knowledge concerning London polytechnics, and deploring any suggestion for weakening the close connection between certain polytechnics and the University of London.

THE President of the Board of Education gave an address at the Bradford conference of the Association of Teachers in Technical Institutions, and from his remarks it seems likely that some of the subjects which will receive prominence in the new Education Bill can be foretold. Mr. Pease thinks it is desirable that the Cockerton judgment should be abolished in some districts so that higher elementary schools may be encouraged in rural areas. The pupil-teacher system is probably to be reintroduced in rural districts with the view of meeting the shortage in the supply of elementary-school teachers. It is questionable whether compulsory continuation schools will be introduced, but the junior day technical schools are forthwith to be fostered and developed so that some training to take the place of the old apprenticeship may be available for boys and girls. Mr. Pease announced that it has been decided to increase the grant from £2 17s. a head to £5 a head for day students in day trade schools.

At the annual conference of the National Association, held at Bournemouth on May 14th, a resolution was passed protesting against the practice adopted by many education authorities of promoting scholars regardless of their educational attainments, in order to secure the numbers required as a minimum by the Board of Education throughout the school classes. Mr. J. W. Jacob, of Leeds, the president, in his address, said the aim of statesmen and others should be to make the primary schools more truly democratic—used as in France and America by rich and poor alike, for obtaining the preliminary stages of educational training. In the face of the dominating influence of social or class distinctions the idea may seem visionary and impracticable; but, by radical

improvements in the schools themselves, and by the cultivation of truer and nobler feelings of Christian brotherhood, its accomplishment may be brought appreciably nearer. Free secondary schools, he said, are the natural corollary to free primary schools. It cannot be right or just to educate a child compulsorily up to a certain point and then, when he begins to show promising talent, to say, "Thus far shalt thou go, and no further!" Maintenance allowances will have to be provided if full opportunity is to be given to all. From a perfected system of primary schools, two continuous streams of children will pass along a broad educational highway. One stream, steadily increasing in numbers, will pass by way of the secondary schools to the technical college or the university; the other may reach the same goal by way of the continuation schools and technical classes.

UP to the present, the principal weakness of the evening educational work conducted by the London County Council has been the absence of any effective connection between the evening continuation schools and the higher institutions such as the polytechnics and technical institutes. A more or less shadowy connection exists on paper in certain cases, but all attempts so far in this direction have practically been total failures. In certain large provincial towns, on the other hand, the problem, admittedly a difficult one, has been solved with very beneficial results, both to the technical institute and to the evening continuation schools.

JUDGING from the report of the meeting of the Education Committee of the London County Council held on May 7th, and from a careful study of the report on the "reorganisation of evening schools" passed with but few minor unimportant alterations at that meeting, we may now reasonably anticipate striking improvements in evening educational work in London. Not only does the report make provision for an efficient, practicable scheme of co-ordination between the technical institutions and the continuation schools, but the whole system of evening-school organisation in London is to be entirely remodelled.

MOST of the changes recommended in the report are reforms for which those keenly interested in London education have long been agitating. Among these changes the following may perhaps be mentioned briefly. Twelve distinct specialised types of schools will be organised next session, including junior and senior commercial institutes, women's institutes providing education in domestic and health subjects, "general" institutes providing a general education for both sexes, and institutes of a "non-vocational" type for students above eighteen, and junior technical institutes. The criticism that evening-school work consists in general of tired teachers endeavouring to instruct tired pupils will be lessened by the provision for the appointment of "responsible masters" for a number of the institutes, who shall do no teaching in the day-time. Further, no assistant in an evening institute who has full-time day employment shall be employed for more than three nights per week. Special efforts will be made to develop the corporate, social life of the institutes, and extensive

provision will be made for the teaching on "tutorial" lines of literature, economics, political and social history, both at the institutes themselves and at the university colleges. The changing of the name "schools" to "institutes" is one of those apparently minor matters which in actual practice exercise so great an influence in education.

THE Parents' National Educational Union met in conference from May 5th to 8th in the Caxton Hall, Westminster. The papers read included two by the founder of the union, Miss C. M. Mason, of Ambleside, on self-education and on the reading habit, and the following subjects were also treated: The Bible in education, by Mr. T. R. Glover; knowledge and learning, by Mr. Stanley Leathes; the Montessori system, by Miss W. Bone; freedom in education, by Mrs. S. Platt; knowledge and national efficiency, by Mr. J. L. Paton; the child as a person, by Miss Helen Webb; while the Bishop of Southwark spoke on the school of life, and the Rev. A. Nairne conducted a service and preached at the Chapel of the Ascension. Business sectional meetings were held for secretaries and their difficulties, and there were many brief papers read on special teachers' subjects and on the problems of the nursery. For all who are not trained speakers the large room at Caxton Hall is, notwithstanding its new wires and ugly baldachin, a vexation of the spirit, and not even trained speakers can defy the noise of the District Railway. But it was possible at intervals to catch a good deal, and some papers were read in smaller rooms. The prevailing note was one of healthy discontent. But the union was not discontented with itself, and showed a fine appreciation of the untiring work of two of its leading spirits, Mrs. Franklin and Miss Parish.

THIS note of discontent was struck specially by the high-master of Manchester Grammar School, who told us frankly that in education no mere giving of sops to the great majority would ever avail. "The phrase 'the educated classes' must disappear; all classes are to be educated; the whole level must be raised." Mr. Paton was probably as well qualified as any to speak on behalf of our great inarticulate but not silent majorities. Other speakers showed discontent with our bureaucratic methods, with our worship of the personality of the teacher, with our inability to make school interesting, with our inappreciation of the true meaning of classical and modern education, with our neglect of character, with our objection to effort on the part of the child, with our pragmatism, our disregard of the best books, and with our running after every new nostrum. The new worship of manual work came in for some hard knocks, and some delightfully satiric remarks on modern authorities showed that the union not only thinks but hits. A very long paper would be necessary for us to do even scant justice to such addresses as Miss Mason's, Mrs. Platt's, Miss Allen's, Mr. Leathes's, and Mr. Glover's. Throughout the whole proceedings the acknowledgment of a great debt to Miss Mason, coupled with entire freedom to apply her principles in many ways, was noticeable; there was also noticeable a diffidence in touching on the grave problems of the elementary

school—problems which cannot even be approached until many of the existing conditions have been consigned to the limbo which we trust is awaiting them. Full prominence was given to the work of the various Parents' Union schools which carry out with great success the teaching of the union.

THE text of a Bill to provide for the establishment of compulsory continuation schools in England and Wales, which has been backed by Mr. Chiozza Money, Mr. Arthur Henderson, Mr. Robert Harcourt, Mr. Alden, and Mr. Ellis Davies, contains the following items:—(a) Attendance at day continuation schools to be compulsory for all children whose age exceeds fourteen but does not exceed seventeen, who are not otherwise being systematically educated; (b) minimum attendance at continuation schools to be eight hours per week; (c) employers to be penalised if they prevent the due attendance of continuation scholars in their employ; (d) no fees to be charged, and the cost of carrying out the Bill's provisions to be made a national charge. According to the statistics for 1906-7 only 35.9 per cent. of children in England and Wales at the age of fourteen attended day or evening schools, and at the age of seventeen only 13.13 per cent. attended.

THE Board of Education has just published a table of summer courses in England, for the information of education authorities, teachers, and students. The table gives particulars of twenty-seven courses, including three summer schools of geography, seven courses dealing chiefly with educational handwork, elementary science, and kindergarten work, one course in child-study and the teaching of young children, one on the direct method of teaching Latin, six courses in various branches of agriculture and horticulture, and nine general courses dealing with several subjects. The table, of which this is the first issue, can be obtained either direct from Messrs. Wyman, Fetter Lane, London, E.C., or through any bookseller, price 1d.

THE true function of the teaching of geography lies in the emphasis which the lessons lay upon man's reaction to his environment. This reaction is frequently studied in connection with lessons in history, and some teachers make use of the same potent factor in connection with lessons upon Biblical literature. Miss Sophie Nicholls, Frances Mary Buss travelling scholar, 1910-11, visited the Holy Land, and she has just exhibited, at the St. George's Gallery, New Bond Street, the photographs which she obtained. Equally happy in her choice of viewpoint, whether in relation to a picture of the holy city, or in relation to the life of the people, or in regard to a typical land form, Miss Nicholls's collection emphasises the background of the story of Palestine at all epochs. Twelve of the most typical pictures are published for the use of schools and colleges by Messrs. J. A. Sinclair and Co., Ltd., 54, Haymarket, S.W. A descriptive book, with topographical maps, showing the viewpoint and range of the camera, is in preparation. The exhibition was noteworthy also for the rare excellence of the coloured photographs, one of which

showed remarkable sunset effects over Jerusalem. Three excellent relief models added to the interest of the photographs.

THE steady growth of the League of the Empire since it was founded in 1901 has necessitated a removal to a larger house at No. 28, Buckingham Gate, Westminster, S.W., which will in future be not only the headquarters of the league, but, through the generosity of Sir Robert Lucas-Tooth, Bart., a vice-president of the league, will also provide club accommodation for members of the league, whether resident in England or visiting this country. Since the inauguration of the league, valuable work has been done in furthering imperial co-operation, and a close association between the educational authorities and all interested in the work of education throughout the Empire has been effected. The progress of the league towards its ideal is shown by the success of its work as detailed in its reports. Some of its publications are standard text-books on the history of the Empire, and such schemes as the migration of teachers for the purpose of study and the organisation of exhibitions afford further illustrations of the activities of the league. The correspondence branch numbers 26,000 members. Encouraged by the success of the Imperial Conference of Teachers' Associations convened by the league last year, and attended by more than 600 delegates and members representing each country of the Empire, the league will now carry out, so far as its means will allow, the practical suggestions and methods of co-operation then adopted.

NOTICES recently appeared in the Press referring to a course of training proposed to be given at Cherwell Hall, Oxford, to women teachers preparing for work in preparatory schools or in the lower forms of secondary schools. The authorities of the college desire it to be pointed out that the course of training contemplated at Cherwell Hall is solely a domestic arrangement. Cherwell Hall has admitted in the past occasionally a limited number of students who, although not qualified to compete for the diploma of a university, can profit by systematic training. A certificate is given to such of these as complete not less than a year's course of residence and training at the hall, and have satisfied the authorities as to their fitness. Some of the notices contained inaccurate statements about the examination for teachers held by the Cambridge Teachers' Training Syndicate. Besides those who have graduated or obtained the equivalent of graduation in some university of the United Kingdom, persons are admissible to the examinations of the syndicate who have passed the intermediate, or an equivalent, examination in arts, or science, in some university of the United Kingdom, or have obtained a certificate, with honours in at least one group, in the Higher Local Examination of Cambridge or Oxford. Persons are also admissible who have passed an examination which can be shown to be at least of the standard of these examinations; and special leave may be accorded to persons who have not qualified by means of examinations, but

have had, in the opinion of the syndicate, adequate experience in teaching, and can furnish proof of having received a good education.

THE seventh summer course in English will be held from June 16th to August 16th at Rättvik, in Sweden. The course is arranged for the benefit of Swedish teachers and students of English, and is organised by Mr. C. S. Fearenside, who will have the assistance of Mr. A. Johnson Evans, both of whom are well known in connection with the teaching of history.

THE new elementary school at Loose, near Maidstone, erected for the Kent Education Committee, presents several novel features. The walls are hollow and 11 in. thick, in place of the solid 14-in. walls previously required by the regulations. The buildings are arranged to surround an open quadrangle with a verandah along three sides. The quadrangle is therefore sheltered from the wind and available for open-air lessons. The class-rooms are arranged so that by folding back the doors three large rooms can be made, in which the separate departments may assemble. Plans and photographs showing these particulars were published in *The Architects' and Builders' Journal* for April 16th.

THE Ontario Department of Education has an organised series of spring and summer courses for the benefit of its teachers. Music, physical culture, manual training, household science, and art are the chief subjects offered. The widespread enthusiasm for summer courses sets us wondering. What is to be said about the existing teaching staffs? If they are qualified in present circumstances, why should they give up their vacations to these subjects? If they are not qualified, then why are they teaching? Such a dilemma is not confined to Ontario.

#### SCOTTISH.

THE Code of Regulations for Day Schools which has just been issued contains few changes of moment. Perhaps the most notable is the intimation on the first page that the operation of the minute reducing the size of classes has been further suspended until 1914. This means that the agitation of the school boards and the managers of voluntary schools against the minute has proved stronger than the wishes of the Department. The voluntary influence, in particular, is a factor to be reckoned with by all Governments, and probably it is that which has led to the postponement of a much needed educational advance. The Department, however, has a right to complain that the undoubted driving power of the Educational Institute has not been exerted as vigorously in favour of the reform as it might have been. There has been no red-hot campaign on its behalf. A few resolutions against postponement have been passed, but the profession as a whole has been apathetic, and no doubt the political chiefs thought it more prudent to placate determined opponents rather than to please indifferent friends.

THE Education Department has won the first round in the fight between itself and the School Board of Dalziel in regard to the dismissal of a teacher. The School Board, it will be remembered, dismissed one of its teachers who had turned Roman Catholic, on the ground that she was no longer qualified to give instruction in such subjects as Bible and history. The Department, at the instance of the teacher, as provided in the Education Act of 1908, ordered an inquiry into the circumstances. The investigating officer found that the dismissal was not justified, and therefore the Department ordered the Board to pay three months' salary to the teacher as compensation. The School Board refused to pay on the ground that the decision was come to, not by "my Lords," as required by the Education Act of 1908, but by the Department in the person of Sir John Struthers. A case was stated before the Court of Session, and Lord Hunter, the presiding judge, has declared in favour of the Department, holding that a court of law has no power to review the actions of a Government Department, as that duty belongs solely to the legislature. Further, he declares that there are plenty of precedents for the head of a Department issuing judgments in the name of the council to which he is nominally responsible. The judgment brings up in an acute form the whole question of religious beliefs in schools, and more is certain to be heard of it.

THE council of Glasgow University has approved of a report of its educational committee on the results of the preliminary examination in arts and science. According to the statistics given by the committee, the results in English and French over a series of examinations show the most extraordinary fluctuations. In English the percentage pass at the different universities for the same examination range from eighty-one to fifty-one, and for different examinations from eighty-one to thirty-seven. In French for the same examination the percentage varies from fifty-six to thirty-three, and for different examinations from fifty-six to eighteen. The report very pertinently states that it is impossible to understand why, under similar conditions as regards students, there should be such marked differences in results. It further states that there is distinct evidence of an unnecessarily severe standard of pass in French. The report concludes with the following statement, which might be emblazoned on the walls of the study rooms of all examiners: "Clever examination papers, in which the too specialist knowledge of the examiners is displayed, and containing a too large percentage of out-of-the-way queries, are not suitable for the end aimed at, and occasionally lead to unsatisfactory if not unjust decisions."

At a conference in Edinburgh of school medical officers, Sir John Struthers gave an address on the importance of the system of medical inspection set up by the Education Act of 1908. All interested in education were coming more and more to realise that all this educational theorising was more or less futile unless the foundation of physical health was well and firmly laid. In seeking to improve the health of the pupils and to remedy defects that were found to exist,

they should endeavour to carry the parents with them, as it was neither wise nor politic to drive them at the point of the bayonet. He emphasised the necessity of the medical officers getting into touch with the inspectors of their respective districts. Through the influence of the latter and their power to withhold grants, medical officers would be able to secure improved health conditions in schools more expeditiously than was otherwise possible. Two things are somewhat remarkable in this address. In the first place, recalcitrant school boards are to be *coerced*, while recalcitrant parents are to be *persuaded*. Secondly, throughout the whole address no reference is made to the work of the teachers upon whom a large part of the burden of medical inspection falls, and who, moreover, long before formal medical inspection was thought of, did a great work in seeing that the more glaring physical defects of their pupils were attended to. The probable explanation of these inconsistencies is that Sir John was not giving a reasoned statement on the subject, but merely offering a few words of encouragement and advice to those present, without any thought that "chiefs were among them takin' notes."

THE new Code for Continuation Schools has now been issued, and, as was generally expected, the changes are few and unimportant. In future special qualifications under Arts. 37*b* and 39 of the Training Regulations will only be accepted for teachers of practical subjects in Divisions I. and II. where it is shown that no better qualified persons are available. This seems a breach of faith with students who qualified in these subjects on the understanding that all such posts would be open to them. This is indeed another evidence of the desire to push at all costs the extra-special specialist of chapter vi. of the regulations. The only other change worth noting is that 8*s.* 4*d.* per pupil per hour per week is no longer to be paid for practical subjects in Division I. classes. Payment in the two divisions is now made uniform on a scale ranging from 4*s.* 2*d.* to 8*s.* 4*d.* per pupil.

#### IRISH.

It appears that the anticipations made in the May notes in reference to the £40,000 grant were a little previous. They are, however, in a fair way to be realised shortly. When all the difficulties seemed to have been overcome, a fresh objection was made of a minor character, and it may now be assumed that conditions will very soon be arranged suitable to all parties concerned. Mr. Birrell spoke early in May in the House of Commons very hopefully, and stated that he expected to be able to publish the scheme at an early date, and had no doubt that the points at issue would be settled. One part of his statement will nevertheless cause some disappointment, viz., that in any case the grant will not be available for the present year. As the payments of Intermediate money for the school year ending in June are not made to the schools until December, there is no reason why with a little goodwill it should not be available this year, but blame can scarcely be attached for this to Mr. Birrell, seeing that after all it is the schools which have delayed the grant for so long.

It is understood that the new Intermediate programme for 1913-14 will include a commercial course. The Catholic Headmasters' Association, in discussing this change, declared itself in favour of the inclusion of a commercial subject or subjects in the programme, but requested the Intermediate Board to give the headmasters an opportunity of discussing the details of any scheme of the kind before it was introduced. The association did not think it would be convenient to introduce any such subject into next year's programme.

THE association also expressed decided views on two other matters relating to changes in the Intermediate system. The first was manual instruction, which it does not regard as a fit subject to be placed on the programme of Intermediate schools. Schools which teach this subject are at present able to earn grants for it from the Department of Technical Instruction. The other is the important proposal embodied in a Parliamentary Bill introduced this spring by the Chief Secretary, largely substituting inspection for examination as the basis of the school grants. The association passed the following resolution: "That inspection has not yet been put upon a footing which would warrant the substitution of the inspection test for examination as the basis of distribution of school grants in any grade higher than the preparatory."

THE Senate of Queen's University, Belfast, has decided unanimously to establish a chair of education as soon as possible at a salary of £600, with a view to the appointment of an organising professor of education. It has also recommended that if and when such appointment be made a diploma or certificate in education should be instituted, in order to meet the immediate and urgent requirements of secondary and technical teachers. The committee on the report of which the Senate acted said that the matter had reached an urgent stage in secondary and technical schools, because it was the policy of the technical department not to recognise permanently as a teacher anyone unless he gave evidence of some study of his profession. Unless, therefore, the University made some provision the schools would be unable to obtain teachers, and those who wished to become teachers would go elsewhere than to the Queen's University. It has been suggested that the county councils of Antrim and Down should each provide £300 a year for the professorship.

THE Margaret Stokes lectures in Alexandra College were this year delivered by Prof. R. A. S. Macalister, who chose for his subject, "Muirthead, the Abbot of Monasterboice." The period of Irish history dealt with was therefore that of a thousand years ago, when Ireland had a European reputation for scholarship and art.

#### WELSH.

THE problem of the teaching of Welsh is not always so simple as might be supposed. Thus in Denbighshire a report has been submitted to the Education Committee from the Cefn Mawr district stating that the teachers are agreed that only little progress can



be made owing to the limited time that can be given to it, and the comparatively little Welsh spoken in the homes. Out of 208 children attending one of the schools only twelve could speak Welsh, and in another district out of 651 children in the schools only ninety-two spoke Welsh at home. It is clear, therefore, that the teachers have to attempt the task of teaching Welsh in spite of the indifference of the parents. The above-mentioned report was submitted from a conference of managers and head-teachers, and pointed out that the teaching of Welsh received as much attention as was possible in the present circumstances, but that the work could be considerably extended if the public, and especially the parents, took a more active interest in the subject.

THE fifth Summer School of Temperance, Hygiene, Social Service, and Physical Training is to be held at the Normal College, Bangor, from July 26th to August 2nd, under the auspices of the North Wales Temperance Federation. The school is recognised by the Board of Education under the regulations for technical schools. The public is invited to attend the opening lecture of the school on Saturday evening, July 26th. There will be an ordinary course (including lectures only) for the students who join the school for the first time, and an advanced course (including lectures and laboratory work) for those who desire to pursue the subjects experimentally. The subjects will include foods, alcohol and alcoholic drinks, hygiene, social service, and physical training. The lectures will be based on the Board of Education syllabus of lessons on temperance, and upon the programme of the Welsh National Memorial Fund for Combating Tuberculosis.

At Rhyl, the local education authority has taken over an elementary school known as the Rhyl Christ Church School from the trustees of a lady who had maintained or largely supported it. At the time of taking over, it is stated that there were on the staff three certificated assistants, as well as the headmaster. It appears that, under the local education authority, there is now only one certificated assistant-teacher. The managers have made an appeal to the authority on the occasion of the appointment of a new teacher, but in vain. By the casting-vote of the chairman, it was decided to appoint an uncertificated master. The grounds given were the desirability of economy. The Board of Education apparently sanctioned the lower scale of staffing adopted by the authority, and by appointing uncertificated teachers, the ratepayers will be "saved" £35 per annum. If the lady benefactress had "cared to throw away her money on extra staff, it was her own pleasure. As a committee they were dealing with ratepayers' money." But as one of the committee afterwards suggested, it seems a contradictory procedure for the public to support training colleges for teachers, if committees afterwards are to substitute uncertificated for fully qualified teachers.

THE Cambridge University Welsh Society has decided to offer to assist in the promotion of higher education in Wales by certain members giving up a portion of their summer vacation and going to

Aberystwyth (with the consent of the College Council) and delivering short series of lectures on subjects of general interest from August 16th to August 29th inclusive. This undertaking is in addition to, and independent of, the Aberystwyth College Summer School, announced in this column last month. In these lectures technical terms will be avoided so far as possible, and each lecturer will endeavour to present his material in the simplest manner. The lectures will be illustrated by lantern-slides wherever possible. During the course two lectures will be given each morning, and one each evening. The morning lectures will be open to all who register themselves at a fee of 2s. 6d. as members of the school. The evening school will be free to all who care to attend. The subjects will include "Bacteria and Our Food," "The Language of Our Forefathers," "The Theory of Conduct," "Human Geography," "The Solar System," "The British Parliament," "Radium and the Constitution of Matter," "Wild Plants and their Environment," "The Rise and Growth of the Social Problem."

At the annual general meeting of the Welsh County Schools Association, Mr. Silyn Roberts, the recently appointed secretary of the Appointments Board, gave an account of the aims and projects of the board. It is intended shortly to publish a periodical giving particulars of vacant appointments suitable for students leaving Welsh intermediate schools and university colleges. He also hoped to publish eventually a book giving full detailed descriptions of all possible careers for boys and girls in Wales. It was said in the course of discussion that some employers were reluctant to give appointments to boys of seventeen at all, preferring to receive them at an earlier age, though they sent their own sons to get a complete education.

### PLAYS BY SCHOOLBOYS.

(1) *Plays by Boys of the Battersea Polytechnic Secondary School.* (Simpkin, Marshall.) 1s.

(2) *Perse Playbooks, No. 3.* (Hefler.) 2s.

IF the plays in two volumes before us, written by boys of the Perse School, Cambridge, and of the Battersea Polytechnic Secondary School respectively, had been published without any foreword, or author's name, one could safely surmise them to be of adult origin. The occasional crudity, the imitativeness, and the touches of slang, are all such as may be easily matched in works by authors of mature years. On the other hand, we fail to observe in the plays signs of extraordinary genius, such as would warrant publication, if we judged them simply as works of art.

The enthusiastic schoolmasters who stand as god-fathers to the little books do not, however, we imagine, justify their being offered to the public on their merits alone. They are rather put forward in justification, or explanation, of a system or method of instruction which the teachers hold dear. And from that point of view, one may freely admit, each of the volumes deserves all possible praise.

It is seldom, indeed, that school compositions in verse or prose reach even approximately the high level here attained. Mr. Arnold Smith and Mr. H. C. Cook have evidently the rare gift of inspiring their pupils not only with enthusiasm for learning, but also

for doing and making. Not the finished product itself, but the work, the energy, and joy which have gone to producing it are of value. In Mr. Cook's eloquent dream of a "play-school," which he prefixes to the account of the making of these particular plays, many teachers will recognise their own imaginations given shape.

"The hope of achieving the Play School is," he says, "most surely moving a thousand lives. . . . All your worries of a curriculum the more inefficient the more you add to it, of the backward child, of the vicious adolescent, of the problem of punishment, of the refractory parent, of the overworked teacher, nay, even (if you will go all the way) of overcrowded cities, of an over-lenient because ignorant electorate, here find their ease and solution."

In like manner Mr. Arnold Smith writes: "Finally, we have published these plays to show what can be done in the way of literature in a school where masters and boys regard one another as comrades, and where the keynote of our efforts is the belief that 'the true strength of every human soul is to be dependent on as many nobler as it can discern, and to be depended upon by as many inferior as it can reach.'"

The spirit that animates the Perse and the Battersea Schools is no isolated phenomenon. From the east and the west, from the north and the south we hear of similar attempts taking different shapes, according to the idiosyncrasies of leaders. There was surely never an age in England when so much was being done to lift individual spirits from the crushing weight of custom and authority, and leave them free to serve their kind as they are able. Not every teacher would be able to produce results that are so effective and, as it were, specious as these here presented. It depends upon gifts of teacher and taught. But the fine high, free spirit of these two schools is capable of expansion, if not of imitation. It breathes itself into the atmosphere of the community.

## EDUCATION AT HOME AND ABROAD.

(1) *A Cyclopaedia of Education*. Edited by Dr. P. Monroe. Vol. iv. 682 pp. (Macmillan.) 21s. net.

(2) *Educational Ideals and a Valiant Woman*. By M. F. 303 pp. (Harrap.) 3s. 6d. net.

(3) *Education and Ethics*. By E. Boutroux. Translated by F. Rothwell. 236 pp. (Williams and Norgate.) 5s. net.

(4) *Studies in Foreign Education*. By Cloudesley Brereton. 302 pp. (Harrap.) 5s. net.

(5) *The Montessori Method*. By S. A. Morgan. 72 pp. (Toronto: L. K. Cameron.)

(6) *Technical School Organisation and Teaching*. By C. Hamilton. 178 pp. (Routledge.) 2s. 6d. net.

(7) *Dante, Goethe's Faust, and other Lectures*. By H. B. Garrod. Edited by L. F. Garrod. 386 pp. (Macmillan.) 3s. 6d. net.

(1) WITH the issue of the fourth volume, the "Cyclopaedia of Education," edited by Dr. P. Monroe, draws near its completion. Most of the articles on the general theory and practice of education are by leading American writers on their respective subjects—such men as Dewey, Judd, and Titchener. So also, of course, are the articles on American education, which naturally take up much space in a work of American origin. The chief contributions by Englishmen are those which deal with the history and administration of English education. Thus Mr. Blair writes on education in London, Mr. Hartog on London University, and Dr. Rashdall on Oxford, whilst the articles on English educational biography are

written by Messrs. Sadler, Leach, F. Watson, De Montmorency, and Salmon. The volume well maintains the growing reputation of this very important work.

(2) The book somewhat curiously entitled "Educational Ideals and a Valiant Woman" we regard as a very noteworthy contribution to educational literature. The writer, an American, and obviously a woman, is imbued with a desire "to lift into the light another of those beautiful obscure lives which persist in the memory of those who have known them as a source of pure delight and high aspiration." But in paying her tribute to the memory of a revered teacher, a "valiant woman," the author is led to give a critical account of modern education; in fact, the heroine becomes submerged in, and subordinated to, this account. The function of the teacher, the "English question," instruction in foreign languages, in science, and in history, ethical teaching, "methods and method makers," are discussed in a series of chapters remarkable alike for clearness of insight and for genuine learning lightly worn. Moreover, the book is so beautifully written that we scarcely think any teacher, or any educated parent, could, having once begun, fail to read it to the last page. Who "M. F." may be we do not know, but we are indebted to her for a really valuable book, which we hope will have a large circulation among teachers on this side of the water.

(3) At the Fontenoy Training College for Elementary Teachers the excellent custom prevails of asking a distinguished outsider to give the students a short course of lectures having no direct bearing upon their examinations, but calculated either to complete their general course of instruction, or to instil a spirit of reflection. In "Education and Ethics" we have a course, retaining the familiar style of lectures, given in these circumstances by M. Boutroux. The first part of the book consists of a brief review of the principal types of ethics—the Hellenic or æsthetic, the Christian or religious, and the modern or scientific—their conflict and their reconciliation. Next we have a discussion of pessimism, bringing out the importance of belief in duty and of cultivating the spirit of optimism. The remaining chapters, on the motives of study, reading aloud, interrogation, school and life, bear directly upon definite aspects of the work of the schoolroom. As compared with pedagogy of the official type, these chapters are remarkably fresh and stimulating, and often go to the root of the matter in unexpected ways. Every topic is handled with a simplicity which is attainable only by a master. The translation is sometimes obviously faulty, but is always intelligible.

(4) The spirit of unrest which at present possesses English education, and has recently manifested itself in Lord Haldane's pronouncement, has moved Mr. Brereton to collect in a single volume a number of "Studies in Foreign Education," prosecuted by him during the past few years. Most of these studies are already well known to the comparatively few who read and file educational reports and journals, though even by them this collective issue in a convenient form will be welcomed. More than one-half of the volume is occupied by a reprint of Mr. Brereton's "Comparison between French and English Secondary Schools," published in one of the Board of Education's volumes of Special Reports. The remaining studies, mostly of French education, are, of course, slighter, but are not on that account unimportant. For Mr. Brereton writes as one who sees into the heart of French life, and views French schools and colleges as so many manifestations of that life. He knows what he is writing about far too well to advo-

cate direct imitation of foreign methods; witness, for example, his interesting analysis of moral instruction in France. His general contention that English-speaking peoples have sought educational inspiration too exclusively from Germany will find many sympathisers in this country. The publication of the volume is most opportune.

(5) Far superior, we think, to our own Board of Education's pamphlet on "The Montessori Method," is the pamphlet on the same subject written by Dr. S. A. Morgan, and issued by the Ontario Department of Education. We say it is superior, not only because it is more complete, but also because of the sanity of its criticism. Here we have no unmeasured depreciation of present methods. The Montessori system is expounded and illustrated, and then compared with Froebelism in particular, and with the best modern methods in general. We recommend Dr. Morgan's pamphlet to anyone who desires in brief compass both a description of the Montessori method and a well-balanced estimate of its probable value for the educator of the present time.

(6) The appearance of Mr. Hamilton's book on "Technical School Organisation and Teaching" is an interesting sign of the times. The abolition of the Board of Education's examinations in the elementary stages of science subjects means wider freedom and greater responsibility for the teachers. In other words, the teachers now have a sufficient motive for putting their best thought into the consideration of the ends and means of technical education. Hence the publication of this book. The first part deals with the nature and purpose of evening technical education, the second with organisation, the third with the principles underlying sound instruction, whilst the fourth gives hints on the special methods appropriate to the teaching of certain selected subjects. The concluding chapter advocates the training of technical teachers. We think that the author has performed his pioneer task very creditably, and that the book speaks well for the possible future of the department of education with which it deals.

(7) Not only the many friends and acquaintances of the late Mr. H. B. Garrod, but also a large number of those who knew him only officially as the able secretary of the Teachers' Guild, will, we believe, be glad to know that some of his more important lectures are now accessible in book form. Most of the purely literary lectures were delivered to University Extension audiences. The educational lectures treat of the teacher's ideal, the ancient universities, specialisation during school years, co-education, classical culture for non-classical pupils, and the registration of teachers. All these various subjects are handled in that spirit of broad catholicity which was so thoroughly characteristic of the man. To few is it given to combine culture and practical statesmanship in so eminent a degree, and though some of these lectures were on questions of the hour, there is a deep sense in which none of them will ever be out of date.

## RECENT SCHOOL BOOKS AND APPARATUS.

### Modern Languages.

*Matriculation French Essays.* By H. G. Chaytor and W. G. Hartog. x+123 pp. (Clive.) 1s. 6d.—The new regulations for London matriculation require free composition as well as set composition, and it was to be expected that the alert University Tutorial Press would soon be in the field with a book on free composition. The authors have produced a serviceable and well-graded book, which will contribute its

share to the improvement of this important part of the French teacher's work. The book presents no new features—that is to say, none that may not be found in the books on the same subject by Miss Bull, Messrs. Pratt and Philibert, Miss Hart and Mr. O'Grady, Mr. Mansion, and Mr. Baron; but if it is not original, it is at any rate workmanlike, and it seems to be printed carefully. The "summaries to be enlarged" and the "subjects for essays" will be found distinctly useful by teachers.

*Phonetic Readings in English.* By Daniel Jones. xii+98 pp. (Winter, Heidelberg.) 1s. 8d.—The student of English phonetics owes much to Mr. Jones's industry, and finds in every book he writes something to learn. The present book is intended primarily for foreigners; a noteworthy feature is that gramophone records can be obtained of all the anecdotes (forty) in the book. In addition to this, Mr. Jones gives us "Box and Cox" and "John Gilpin." The phonetic transcription is very careful. On some points there may be difference of opinion, but misprints are rare. Occasionally the pronunciation seems a little too colloquial; thus we should have relegated "redʒmənt" to the footnote and not indicated that the *d* of "friendship" may be omitted, as is done on p. 11 (but not on p. 13). The last three anecdotes Mr. Jones has furnished with his valuable intonation curves. Whether he was wise in choosing "Box and Cox" may be doubted; the dialogue is very old-fashioned. Interesting points in the transcription are *cheroot* with tʃi-, *toss* with long ɔ, *carefully* with -fuli (Mrs. Bouncer speaking); "ænʃəs" on p. 44 is a misprint. In "John Gilpin" we have noted the omission of ðə on p. 46, l. 17; twain on p. 49, l. 3; æz hi, transferred to l. 22 on p. 51; journey on p. 53, l. 12. Such trifles in no way detract from the usefulness of the book.

*J. Claretie, Pierille.* vii+184 pp. 1s. 6d. *P. Méri-mée, Tamango, José Maria le Brigand.* vi+92 pp. 1s. Edited by R. R. N. Baron. (Mills and Boon).—We welcome another publisher starting a series of "direct method French texts," and congratulate him on his editor, who has performed his task in a way which will please every reform teacher. The text of these stories is familiar; they are well suited for use in schools. The printing is careful; "Pierille" has a number of rather poor half-tone blocks for illustrations. In both books the difficulties are explained in French, unfortunately not at the foot of the page; in "Tamango" the lines have not even been numbered, and there is no indication which words are annotated. This book has thirty pages of capital exercises: questionnaire, exercises on grammar and vocabulary, and suggestions for free composition. The exercises to "Pierille" are generally of a more advanced type; they might have been a little more full, one page of exercises to ten of text being rather a short allowance. We wish success to this new series.

### Classics.

*Thucydides II.* By T. R. Mills, with a general introduction by H. Stuart Jones. 30+text unpagged+86 pp. (Clarendon Press.) 3s. 6d.; notes only, 2s. 6d.—We are glad to mention this book for its useful introduction, in which Mr. Jones criticises some recent attacks on Thucydides. He defends Thucydides satisfactorily, but by implication he admits that Thucydides never was at Pylus. By the way, is the note on p. x. ironical? It is not clear, at any rate. He is not so satisfactory on the author's style, which he calls a struggle between genius and convention (p. xviii.): but almost the only trace of convention in the style is the antithesis, of which λόγῳ and ἔργῳ are the commonest

examples. Thucydides shows the struggles of genius with language; he was one of those who cannot express their thoughts, like Oliver Cromwell or George Meredith. And as such simple souls often are, he is tricked sometimes into using words for thoughts. It is not his compression that makes him obscure; Bacon is compressed, but he is not obscure, nor are many others; it is simply clumsiness. This fact might have saved Mr. Mills (and many others—he is in a large company) from worrying over the MS. reading *ἐτέροις* in 40<sup>2</sup>; he meant *τοῖς αὐτοῖς* to be all the Athenians; then his mind passed to the statesmen, then he thought of another class, and wrote *τοῖς ἐτέροις*. So also his variation of *παρέιχον* and *παρέιχοντο*, 9<sup>4</sup>; it simply will not do to make Thucydides talk with the subtlety of Plato. He even uses *πειρῶ* for "I try," and what a howler that would be in a fifth form prose! Mr. Mills's translations are rather stilted; see p. 1, "taking up a definite position of hostility," truly awful; but he seems to like that phrase, for he uses it again on p. 3 for *θήμενοι τὰ ὄπλα*, which is simple enough. Mr. Mills believes in the third wall to Phalerum (p. 15), and he has a sensible note on Enneacrounos (p. 18).

*Cambridge Greek Testament for Schools and Colleges: The Epistle to the Romans.* By R. St. John Parry. 1+244 pp. 3s. 6d. net. II. *Peter and Jude.* by M. R. James. 1x+46 pp. (Cambridge University Press.) 2s. 6d. net.—These editions are both excellent in one way: they contain discussions of every imaginable question. Thus Mr. Parry's has 264 pp. of comment on 30 pp. of text, Dr. James's 98 pp. of comment on 8 pp. of text. This is not the commentary for schools; it is suited for the man who has already read the text, and knows what it means generally. The teacher will find it well suited for him. Mr. Parry's commentary might have been compressed with advantage; he is stilted and verbose (e.g., who would use *anarthrous*, p. 34, to mean "nouns without an article"?). But we bear witness to his completeness and his fairness in stating the points of controversy. In one matter of importance we find ourselves at variance with him—when he speaks of the *ἀσθενῆς συνειδήσις*, I. Cor. viii. 7, as "the paradox of calling a sensitive conscience weak" (p. 209). It seems to us a good instance of the different conceptions of *συνειδήσις* and conscience. The modern seems to regard conscience as a matter of feeling; thus the anti-vaccinator calls himself a "conscientious" objector, when all he means is that he really does not want vaccination; and "conscience" is often called in to defend actions which are impossible to defend by reason. But *συνειδήσις* is intellectual; and *ἀσθενῆς συνειδήσις* means exactly what it says—the man of weak intellect thinks that if I eat meat offered to idols, I condone all the immorality of idol worship. He is a foolish fellow; but Paul will not hurt even him if he can help it.

Dr. James's "Jude" is extraordinarily interesting; it contains no gas and no cant, but it is plain common sense applied to the New Testament. Dr. James concludes that Jude is genuine, certainly, and II. Peter probably. His statement of possibilities in that and in other questions is exhaustive—perhaps a trifle smacking of the higher schools certificate. It certainly leaves nothing for the student to do but to thank his stars that Dr. James has done it all so well for him. But for the teacher, as we said, the book is extraordinarily interesting.

#### English.

*Bohn's Popular Library.* First issue of twenty volumes. (Bell.) 1s. net each.—Bohn's libraries are

known and appreciated by every student of literature. They brought together the masterpieces of the world's literature, and represented the most comprehensive and useful collection of translations and reprints ever made accessible to the general public. In recent years the series has found a competitor in "Everyman's Library," which now includes 640 volumes, but it has never been surpassed in excellence of selection. We welcome, therefore, the re-issue of the libraries at the low price of one shilling a volume. The first twenty of these volumes are before us, and we have renewed our acquaintance with them with delight. The volumes include "Gulliver's Travels" and "Don Quixote," Motley's "Rise of the Dutch Republic," Emerson's works, Burton's "Pilgrimage to Mecca" and Arthur Young's "Travels in France," Lamb's Essays, Coleridge's "Aids to Reflection," and Goethe's "Poetry and Truth." The fame of Bohn's libraries is such that nothing can now be said which will add to it. We can, however, congratulate Messrs. Bell on the possession of as fine a collection of works of outstanding merit as has ever been made in our language, and all lovers of good literature upon having the volumes in it placed within their reach in attractive and handy form at a nominal price.

*Five Centuries of English Poetry.* By Rev. G. O'Neill, S.J. 368 pp. (Longmans.) 3s. 6d.—This is an example of a type of book of which we have too few; in it representative selections of Protestant writers are given by a Roman Catholic. Throughout the book and the brief notes this can be noticed, though scrupulous fairness and even a non-theological attitude are preserved. We seem to have in this anthology another type of mind looking at our *morceaux choisis*: a mind not tempted to dot i's and cross t's in matters of faith, quite careless in regard to other critics' pronouncements, and intent on choosing what it thinks is best. Thus Chaucer's "Parson" is absent, and so is Spenser's "Protestantism"; Milton's "Hymn" is present, but nothing is chosen from Francis Thompson; the ballads are represented by one that may be called a mystery even by Prof. Child; Burns is represented by "the two dogs," and Mangan by "Dark Rosaleen"; to Keats are given three pages and to Shelley (*mirabile dictu*) thirty. The notes are a model of brevity and sense; here and there is an epigrammatic phrase. There appears in the book no amorous or bacchanalian verse; perhaps Father O'Neill thinks the young are just as well without it. We miss the one beautiful popular anonymous Irish masterpiece. We direct attention once more to the carelessness of the printers in the matter of Greek. The compiler chooses a very well-known Greek motto, and the printers print it with four mistakes in ten words. It is better to leave Greek alone than mangle it thus. The selections are accompanied with some good notes on reading aloud.

#### History.

*The Oxford History of England for Indian Students.* By V. A. Smith. 384 pp. (Clarendon Press.) 3s. *The History of England.* By A. F. Pollard. 266 pp. (Williams and Norgate.) 1s.—The late Prof. Seeley said that if he came across a man who said he did not care for history, it did not occur to him to alter history; he tried to alter the man. But there is a difference between history in itself and history as presented in the books. Both Mr. Smith and Prof. Pollard present English history to those for whom the ordinary text-book is largely "weary, stale, flat, and unprofitable." It has been the lot of the present writer to look over examination papers written

by Indian and Colonial students of non-British birth, and thus to have forced on him the question whether a discussion of Henry IV.'s claim to the throne and his difficulties can have any interest or importance to young people in Ceylon, Bombay, or Singapore. What, then, should be the presentation of English history suitable for "Indian students" or for "the man in the street"? Without attempting to answer this question, we may say that both these books present an excellent solution. Mr. Smith tells more of a story. Prof. Pollard interprets the meaning thereof, especially of the constitutional parts of our history, and we can recommend both of them together to the notice of our readers. Because they are so excellent, and so worthy of attaining to second and further editions, we suggest a few changes. Neither writer seems to understand New England in the seventeenth century, or to distinguish between the founders of New Plymouth and those who followed them. The difference is important for understanding the religious politics of the Civil War and the Commonwealth. Prof. Pollard knows perfectly well the distinction between "church" and "clergy," yet on p. 38 he uses that misleading phrase, "enter the church," and writes on pp. 127, 131, "the church," when he means "episcopacy." Similarly, Mr. Smith is careful enough to write "Darc" instead of "D'Arc or "of Arc," yet he allows himself to speak of Dominicans and of Luther as monks; of "Charles V. of Spain" becoming Emperor, and of "Praise God Barebone." He also seems to think the original protest of "Protestants" to have been made against the Pope or papal doctrines. If these matters, which have their importance, are changed, we know of no better books for the non-technical, and, for the matter of that, the technical, student too.

#### Geography.

*The Comparative Series of Wall Atlases: The British Isles.* (Philip.) Eight maps, 21s.—These eight maps are intended for class demonstration, and are issued separately or fastened together; they show respectively, for the British Isles, relief and communications, political considerations, climate—(i) rainfall and winds, (ii) temperatures—agriculture and fishing, industrial elements, geology, and density of population. The surface is not glazed, and the colours on the whole are vivid. We have tested the maps with several classes, and find that the geology map is the best of the eight, while both the climate maps are good, although the inset maps on the smaller scale are useless for a class of, say, thirty pupils. The relief and communications map can be used with good results, but the railways which are shown on the political map are not sufficiently clear. Both the maps which show the work of man, *i.e.*, agriculture and fishing, and industries, appear to be too complicated; the teacher would probably find it necessary to use blackboard sketch maps as a key to the numerous symbols of the printed maps. As regards the density of population, the large towns are indicated, and the density of population is shown up to 512 per square mile; surely it is time that map-makers gave fuller details for the industrial areas of the British Isles than this inadequate representation! For a period so long ago as 1851, a map based upon the enumeration districts of the census shows that the whole population between the Mersey and the Ribble from the Lancashire coast eastwards to the longitude of Leeds had an average density of more than 512 per square mile, and that—including the towns—the districts of Oldham, Blackburn, Halifax, and Bradford, for example, had densities of population respectively

of 3,270, 1,330, 1,490, and 2,890 per square mile, while the districts of Clitheroe, Runcorn, and Pontefract had but 125, 377, and 290 per square mile respectively. Teachers of geography may surely look to the map-makers, especially those who make the large wall-maps, for fuller details as to the densities of the population in the industrial areas; the use of mere dots for the towns fails to show the way in which the workers in the factories are scattered over the land.

#### Science and Technology.

*Beginnings in Agriculture.* By Albert Russell Mann. xii+341 pp. (New York: The Macmillan Co.) 3s. 6d. net.—This book will no doubt become extremely popular, especially in the rural schools of America, to the needs of which it is primarily adapted. The author's object has been to bring the pupils "into as close a touch as possible with the actual farms, soils, crops, animals, and affairs," and to set them at work on their own account to investigate certain elementary problems of practical farming. He has not included detailed or technical descriptions of special branches of agriculture, but has restricted the course to the common problems and situations underlying the farmer's work. Indeed, the whole book is conceived and carried out in the best nature-study spirit, and for that reason, as for others, merits the careful attention of British teachers. Certain portions, of course, deal with conditions peculiarly American, and these will be welcomed for their geographical interest. The volume is abundantly provided with useful and attractive illustrations.

*Wall Pictures of British Mammals.* By Archibald Thorburn. 12 sheets. (Longmans.) 2s. 6d. net each; 7s. 6d. net each framed; 35s. net in portfolio.—We have already spoken highly of Mr. Thorburn's wall pictures of flowers, butterflies, and moths, and we can commend the present series quite as unreservedly. The pictures not only show with great fidelity the various animals in characteristic poses and natural habitats, but also display the features—less immediately obvious—which are of special interest to the naturalist. In every case the scale is stated, and the value of the drawing, for school use, thereby increased to an extent which only practical teachers can realise. As examples of high-class colour printing the sheets submitted to us leave nothing to be desired; they are, one feels convinced, satisfactory reproductions of the originals. The pictures of the fox, the wild cat, and the lesser rodents are especially charming, but all are valuable studies, and should do much to stimulate interest in a group of animals which scarcely receive their fair share of attention, either in schools or from the general public. It is to be hoped that the publishers will issue, in connection with these pictures as with the former series, a pamphlet of descriptive notes for teachers.

#### Pedagogy.

*From a Pedagogue's Sketch-Book.* By F. R. G. Duckworth. With a Preface by the Rev. W. C. Compton. 256 pp. (T. Fisher Unwin.) 5s. net.—Mr. Duckworth's essays have proved sufficiently interesting to carry the reviewer's attention from cover to cover. The prevailing impression left on the reader's mind is admiration—tinged with sympathy—for the secondary-school master, especially the resident master. Though ill-paid and sometimes equally ill-experienced in the ways of the world, he is revealed here as absorbingly solicitous for the welfare of his boys, and capable of quite heroic self-sacrifice. We

get illuminating glimpses of the eccentricities of parents, and see successful professional and business men making the weirdest and the crudest suggestions for the education of their sons. And the schoolboy, delightful always, is again introduced to us under many guises; but, as ever, he remains an enigma. We hope the book will fall into the hands of many ordinary parents; if they read it their education will be many steps near completion.

#### Miscellaneous.

*Holiday Resorts and Recommended Addresses, 1913.* 142 pp. (Hodgson.) 1s. net.—Teachers proposing to travel abroad during the summer vacation and wanting information as to where they can stay in comfort should certainly consult this very useful directory of holiday homes. Great care has been taken by the committee appointed by the council of the Teachers' Guild to prepare the book to secure accuracy and completeness. The small cost of the publication will be many times repaid by travellers using it.

*The Parents' Book: A Book which Answers Children's Questions.* By Rita Strauss, assisted by a staff of contributors. vii+737 pp. (Jack.) 3s. 6d. net.—Though this remarkably cheap cyclopædia scarcely meets all the claims made for it by the publishers, it will certainly prove of great assistance in enabling parents and nurses to answer many of the never-ceasing inquiries of the children under their care. The scope of the volume is very wide, and on the whole a high standard of accuracy has been secured. It is not surprising to find unconvincing answers here and there. The answers to "Why does the wind blow?" and "What are tides?" for instance, will prove unsatisfying, until the child has obtained some sound knowledge of the fundamental principles of physics. And when a second edition is called for by the "several millions of parents and guardians" who are, the publishers say, "waiting for this book," some modifications should be made. On p. 95 the illustration is wrongly called an arc lamp; on p. 189 other fountain pens should be mentioned; some idea of the natural size of animals should be given—a child might easily think the bat's wing on p. 210 is as large as the camel on p. 225, and the brittle starfish on p. 375 larger than the rhinoceros on p. 251. But these are trivial matters, and we have no hesitation in recommending the volume as a book of reference for the home and schoolroom. We are sure it will secure a wide circulation.

### EDUCATIONAL BOOKS PUBLISHED DURING APRIL, 1913.

(Compiled from information provided by the Publishers.)

#### Modern Languages.

"Les Aventures de Maître Renard." Edited by Marc Ceppi. (Arnold.) 1s.  
Gustave Aimard, "Les Contrebandiers." (Blackie's Little French Classics.) Edited by Edith Fielding. 48 pp. (Blackie.) 4d.  
"Deutsche Stunden: Nach der analytisch-direkten Methode." By V. Krueger. A German Course for beginners of 13-15 years of age. 150 pp. (Blackie.) 2s.  
Erckmann-Chatrion, "Madame Thérèse." By A. R. Ropes. xvi+280 pp. (Cambridge University Press.) 3s.  
Schiller, "Die Braut von Messina oder Die feindlichen Brüder." Ein Trauerspiel mit Choren. By Karl

Breul. civ+280 pp. (Cambridge University Press.) 4s.

"Classified French Unseens." By W. G. Hartog. 242 pp. (Clive.) 2s.  
"Classified Passages for Translation into French." By W. G. Hartog. 158 pp. (Clive.) 2s.  
"The Masters of Modern French Criticism." By Irving Babbitt. (Constable.) 8s. 6d. net.  
Beaumarchais, "Barbier de Seville." Edited by E. Weekley. 128 pp. (Hachette.) 6d.  
Erckmann-Chatrion, "Le Blocus." Chapters i.-xiii. Edited by Frederic Spencer. 160 pp. (Hachette.) 1s. 6d.  
"Phonetic French Reader." By Marc Ceppi. 96 pp. (Hachette.) 1s.  
Guy de Maupassant, "Trois Contes: Le Loup, A Cheval, Deux Amis." 96 pp. (Hachette.) 1s.  
"Studies in Foreign Education." By Cloudeley Brereton. 316 pp. (Harrap.) 5s. net.  
"Longmans' Modern French Course." Part I., containing Reading Lessons, Grammar, Passages for Repetition, Exercises, and Vocabulary. By T. H. Bertenshaw. Illustrations of French Life by Dorothy M. Payne. (Longmans.) Pupils' edition, 1s. 6d.; teachers' edition, 2s.  
"Mémoires d'un Collégien." By André Laurie. Adapted and edited by W. J. Fortune. (Siepmann's French Series.) 204 pp. 2s. Words and Phrase-book for the same. 24 pp. 6d. (Macmillan.)  
"Colomba." By Prosper Mérimée. Forming a new volume of Massard's Series of French Readers (according to the New or Direct Method). 278 pp. (Rivington.) 2s.  
French Grammatical Readers: Series A, "L'Homme à l'Oreille Cassée." By Edmond About. 172 pp. Series B, "Contes Choisis." 176 pp. Edited by A. R. Florian. (Rivington.) 1s. 6d. each.

#### Classics.

"Prima Legenda: First Year Latin Lessons." By J. Whyte. viii+64 pp. (Cambridge University Press.) 1s. 4d.  
"T. Macci Plauti Aulularia." Edited by E. J. Thomas. 06 pp. (Clarendon Press.) 4s. 6d.  
"Sermo Latinus: A Short Guide to Latin Prose Composition." Complete. By J. P. Postgate. 196 pp. (Macmillan.) 3s. 6d.

#### English: Grammar, Composition, Literature.

Laureate Poetry Books: Lowell and Whittier, Selections, including "The Vision of Sir Launfal." "A Book of Ballads." William Morris, "The Man Born to be King" (from "The Earthly Paradise") and "The Quest of the Golden Fleece" (from "The Life and Death of Jason"). Tennyson's "Coming of Arthur" and "Passing of Arthur," &c. Tennyson, A Selection from "The Marriage of Geraint," and other Poems. (Arnold.) Each, paper, 2d.; cloth, 4d.  
"Cassell's Complete Shakespeare." 1140 pp. 64 illustrations. (Cassell.) 5s. net.  
Carlyle, "Sartor Resartus." Edited by P. C. Parr. 324 pp. (Clarendon Press.) 3s. 6d.  
Matthew Arnold, "Thyrsis and The Scholar Gypsy." (Oxford Plain Texts.) 32 pp. (Clarendon Press.) Paper, 3d.; cloth, 4d.  
"Junior English Grammar and Composition." By A. M. Walmsley and E. H. Edmunds. 454 pp. (Clive.) 2s. 6d.  
"Elizabethan Lyrists and their Poetry." By Amy Cruse. 160 pp. (Harrap.) 1s. net.  
"Byron and his Poetry." By Wm. Dick. 192 pp. (Harrap.) 1s. net.  
"Story of Nelson." Retold by Harold F. B. Wheeler. 256 pp. (Harrap.) 1s. 6d.

"The Boys' Froissart." Retold by Madalen G. Edgar. 256 pp. (Harrap.) 1s. 6d.

"Stories from George Eliot." By Amy Cruse. 256 pp. (Harrap.) 2s. 6d. net.

"Shakespeare's English Kings." Retold by Dr. Thos. Carter. 256 pp. (Harrap.) 1s. 6d.

"Phonic Infant Reader." I. 80 pp. (McDougall.) 6d.

"Phonic Reading Sheets." Set I. 19 sheets. (McDougall.) 12s. 6d. net.

"Passing Months." Teachers' Edition. 184 pp. (McDougall.) 2s. net.

Tennyson, The Children's. With Portrait, Biography, Notes, and Illustrations. 104 pp. (Macmillan.) Paper cover, 6d.; cloth cover, 7d.

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## CORRESPONDENCE.

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### Bad Bookwork Questions in Mathematics.

IN revising a number of examination papers I have been struck by the frequency of a particular type of question which not only may be of no educational value but may even in some cases be positively harmful. The following examples will illustrate my point:

"Find the sum of a geometrical progression."

"Prove the binomial theorem for a negative or fractional index."

"State Newton's laws of motion."

"State and prove Pascal's or Brianchon's theorem."

"Prove that  $\sin(A+B) = \sin A \cos B + \cos A \sin B$ ."

"Prove Lagrange's equations of motion."

Such questions are of no educational value when they can be answered by any candidate who has taken the trouble to learn them up by heart the night before the examination. They become positively harmful when an intelligent candidate *cannot* write them out *unless* he has learnt them up within a short time of the examination. Personally I could not now prove Pascal's theorem or Lagrange's equations in the ordinary way without looking them up in the text-book first. As regards Newton's laws and proving the binomial theorem, I underwent so much drudgery in copying these from memory in class exercises in my student days that I do still remember them, but I remember the hateful drudgery even more keenly.

I have seen candidates forced through examinations qualifying for university degrees on the ground that they had copied down from memory a proof of the formula for the permutations of  $n$  things  $r$  at a time, although their incapacity, not only to answer, but even *either intelligently to fail to answer*, or to leave *unattempted*, a question on the permutations of the letters of the word "degree" showed that they knew nothing about the subject. I have also seen a candidate awarded first class university honours in mathematics on the strength of having similarly copied the proof of Lagrange's equations, while others who had studied the course more intelligently were refused.

It would be wrong to suppose that *all* bookwork is equally open to objection. There are some propositions of which a proof could easily be written out without previous preparation by anyone who had intelligently grasped the fundamental principles of the subject under consideration, while it would not be very easy for an unintelligent candidate to give a correct account of the demonstration in the examination-room based on mere memorising. I think it would serve a useful purpose if a list were drawn up of all the most objectionable pieces of bookwork from this point of view, so that such questions might be avoided by examiners, and teachers merely need make sure that their pupils could intelligently appreciate the methods of proof without actually learning them by heart.

These remarks have a peculiar significance in connection with geometry. If the object of reforming our teaching of this subject was *not* to abolish this particular type of question, what was the use of all this fuss and bother? But I am bound to say I can see very little difference between some of the geometry questions of to-day and those of thirty years ago in this respect. If this kind of question is to be retained in our examinations, we ought not to blame our pupils for idling during the term, as doing so renders them fresher and more receptive for the mass of propositions with which they have to stuff their



minds at the eleventh hour. I have had abundant experience of pupils who have carried out these methods with success, and a great trouble they are to a teacher.

It is a somewhat remarkable fact that if an *index expurgatorius* of the kind suggested were drawn up it would probably include the proofs of many of the most fundamental truths of mathematical science, and I certainly think that Euclid I. 47 might find a place on the list. But, after all, is there anything very remarkable in that? The pupil who can merely prove that the square on the hypotenuse of a right-angled triangle is equal to the sum of the squares on the sides after all knows nothing about the real significance of the Pythagorean proposition; in fact, he does not understand it at all. He begins to do so when he commences to write down the numerous quadratic formulæ to which that proposition leads in connection with the magnitudes occurring in geometry, trigonometry, mechanics, and almost every branch of physics, and he has really to turn his mind away from these grand truths when he wants to make sure of being able to copy the "proof."

G. H. BRYAN.

#### Grammatical Reform.

LAST July I was among those who were invited to state in THE SCHOOL WORLD their views on the place of grammar in the English work. Prof. Sonnenschein's welcome article on grammatical reform in the April number suggests to me that an elaboration of some of those views with special reference to the recommendations of the Joint Committee on Grammatical Terminology may not be altogether out of place.

The absurdity of teaching the abstractions of grammar to children whose minds cannot possibly grasp such abstractions has practically died away, and though grammar has, in fact, in many schools been entirely abolished from the curriculum, there is, rightly in the opinion of educationists, a reaction in favour of teaching grammar, not of the old formal kind based on Latin grammar, but a newer type as yet unrecorded in text-books. Teachers are all in favour of the general principles of unification and simplification aimed at by the Joint Committee, and there is no doubt the latter has the gratitude of the teaching profession as a whole. There is a danger, however, that the average teacher who studies the Joint Committee's report may make a mistake in the application of those principles. There is the chance that he may fail through studying that report to remember that when a child has to deal with words he is dealing with abstractions, and when he deals with the relation of words he is dealing with a double abstraction, an abstraction of an abstraction. And so in remedying one evil the committee may be unconsciously semi-guilty of encouraging another evil.

The committee is not, and cannot be, responsible for the sins of teachers. Would-be authors of grammars, and teachers, too, are likely to feel it necessary to adopt *all the terminology* suggested, and so attempt to teach things quite beyond the mental grasp of the child. There are many terms mentioned that are suitable for use only with advanced students; they are quite out of place in the initial stages of instruction. The committee leaves this, it will say, to the common sense of the teacher. Granted; but the books on the market prove that teachers have been led astray into supposing that it is *necessary* to teach such things as strong and weak verbs, the retained accusative, and gerund. All the committee says is that these grammatical terms shall be used if the grammarian or teacher finds it necessary to use the

terms at all. The fact really is that the authority behind the report is inclined to make teachers accept everything in it.

The committee goes so far as to urge *the necessity* of teaching not only *case*, but five different kinds of case: nominative, vocative, accusative, genitive, and dative. That Mr. West and others follow the advice is deemed by Prof. Sonnenschein a compliment. To me it seems a very doubtful one. The sub-classification may be interesting from the point of view of the history of language and reasonably find a place in an advanced grammar, but it is the specialist only to whom there is time to teach this advanced grammar. For the average child in the secondary school such instruction seems to me to be out of place. And the Board of Education, which has consulted the views of various teachers before expressing its opinion in its pamphlet on the teaching of English, says so too: "Historical grammar is outside the range of ordinary school work." Teachers may not all entirely agree with this view. At least they will agree that such work comes after the elementary work is done, and should be reserved for the highest classes. What the committee says about the distinction between the accusative and the dative of nouns in sentences which have both cases is true enough, but the fact that the dative is placed before the accusative can surely be explained without the use of these technical terms. It is sufficient for me to say that "my father" is the indirect object, and "a present" is the direct object in such a sentence as "I gave (to) my father a present." Personally I believe the child under twelve should not be taught the term "case" at all. The possessive form can be taught as such. The use of the technical term "genitive" is surely the reverse of simplification, so far as English grammar is concerned. The Latin master may possibly gain by the use of the term in English grammar, but that is no argument for its use. The English master does not feel it his duty to make English the "handmaid of Latin." The pronominal forms "her," "him," &c., can be explained as the forms used after verbs used transitively and prepositions. Thus there would be no need to refer to the term "case," with its unintelligible definition.

Many modern text-books I find are similarly drawn into making the mistake of dealing with strong and weak verbs, surely a superfluous division. Why need the child be troubled with the terms at all? There is simplification if we get rid of the terms from English grammar, none if we retain them. From the point of view of historical grammar, they are, of course, valuable. So are they from that of the teacher of German. But for the average child learning English the division seems to me superfluous. The presence of the terms in the report may perpetuate the fallacy that it is necessary for the ordinary boy to know what strong verbs and weak verbs are. If any terms are to be used, by all means let these be the terms. The same thing applies to retained accusative, gerund, and a few other terms. My point is that these terms are all very well in advanced text-books, but are entirely out of place in elementary school texts. The terms suggested in the report should, after revision, be universally adopted so far as it is necessary to use technical terms. Every teacher of English is against elaborate classification, elaborate terminology, and elaborate technicalities.

The question "what should be taught" seems to me of more importance than "how it should be taught." The pamphlet on the teaching of English in secondary schools, issued by the Board of Education in 1910, says "that grammar should not bulk largely in the regular school teaching, and it should

not be isolated from the composition and the literature." If it is not to bulk largely, advanced work is impossible. Separate grammar lessons I believe necessary to set in order the floating knowledge the child may incidentally acquire. Such instruction should be systematically given. The utility of what is taught and the mental power of the child should guide us in what we include in or exclude from our scheme of instruction in grammar. Is the child able to grasp the instruction? If so, are the facts useful in enabling him either to write or to speak more correctly? Will he become an intelligent critic of his own speech or writing? Will the instruction enable him to make more rapid progress in foreign languages? If so, the instruction is justified, provided we remember that English is not the handmaid of Latin or of French. Public examinations are largely responsible for the abuse of grammatical teaching. Let us cleanse the Augean stables and get rid of elaborate technical terms and elaborate classification from our text-books, and grammatical reform will be quickened by the suggestions towards unification and simplification set out in the report of the Joint Committee on Grammatical Terminology.

ALBERT E. ROBERTS.

#### National Home-Reading Union.

I SHOULD be grateful if you could kindly allow me a brief space in your columns to direct the attention of your readers to the fact that the National Home-Reading Union can now supply copies of its Young People's Book List for next session, which opens in September. As the school year under so many education authorities begins about this time, many teachers will now be considering plans of work and sending in "requisitions" for books, &c., to their authorities. In this connection some of your readers may like to consider the question of forming "reading circles" in their schools, and with this in view, to apply to me for copies of the book list to which I have referred.

Briefly, the union's chief aim in relation to schools is to assist teachers in creating and fostering amongst their scholars a genuine love of good and healthy books, and in training them to read with understanding and appreciation. The methods by which the union seeks to achieve its aim are simple. It is suggested (as approved by the Board of Education) that in the upper standards of elementary schools the ordinary reading classes should be formed into "reading circles" affiliated to this union. This may be done by the payment of the teacher's fee of 1s. 6d. per annum, all the members of the class being recognised thereby as members of the union, and entitled to certain privileges. The fee entitles: (1) To the book list published annually, suited to children of various ages and needs (the books recommended range from 1d. upwards); (2) the monthly magazine which is issued, containing articles of an interesting and suggestive nature upon the books recommended, a "Club Corner," with competitions, &c.

The union recommends that teachers should select two books from the list for their pupils, that the books should be taken home to read, and then talked over and enjoyed by teachers and scholars at the circle meetings, so that they gain a fuller and deeper meaning and interest. The union, further, holds it to be important that, when possible, reading circles should be continued in the evening schools, either in direct connection with regular evening classes (such circles are fully recognised by the Board of Education for grant purposes), or under ladies and gentlemen who are ready to give their voluntary services as leaders of "home circles."

An increasing number of teachers are finding it a helpful stimulus to their scholars, and also a help to themselves, for their reading classes to be affiliated to the union, while a growing number of education authorities are encouraging the formation of these circles by undertaking to pay the small fee (1s. 6d. per annum) and provide the books. In London there are now more than 1,200 reading circles of this kind in elementary day and evening schools, while a considerable number are also at work in many other parts of the country.

I shall be very glad to give further information to any of your readers who may care to write to me.

A. M. READ,

12, York Buildings, Adelphi, W.C. Secretary.

#### Experimental Mensuration.

IN the notice of my "Experimental Mensuration" in THE SCHOOL WORLD for April, the reviewer suggests that I have not yet been led by my studies "to understand the difference between pure mathematics and applied mathematics." If restating my views will help to undeceive him, I will make the attempt. There are two "schools of thought" concerning pure mathematics. One supposes that it is possible to obtain truth concerning nature by *a priori* reasoning. I do not. The other school considers that pure mathematics has no concern with nature, with actual space, &c., but that its object is to discover by deductive reasoning the consequences of certain assumptions. Thus we may have geometries dealing with all sorts of space other than that of Euclid. I have no quarrel with pure mathematics, understood in this sense, as such; only, since it is not a science, but a branch of speculative philosophy, I do not consider that it is suitable to teach to elementary students. What I try to teach is mathematics as dealing with the relations and properties of nature, *i.e.*, as a science; this, presumably, is what your reviewer means by "applied mathematics."

I may suggest that if my fundamental doctrines concerning mathematics are based upon a misunderstanding, it is curious that, based upon these erroneous views, I have written a book of the excellence which, in the first part of his review, your reviewer attributes thereto.

H. STANLEY REDGROVE.

The Polytechnic, Regent Street, W.

April 15.

MR. REDGROVE's point of view is not very clear. If deductive geometry is "speculative philosophy" and so unsuited for teaching to elementary students, why does Mr. Redgrove include "deductive proofs" in his book? Are not arithmetic and algebra also "speculative philosophy" according to his definition? And, if so, why should Mr. Redgrove in his preface impute it as a fault to Euclid that he does not use arithmetic?

THE REVIEWER.

## The School World.

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SIXPENCE.

## SECRETARIAL TRAINING FOR GIRLS.

By JAMES OLIPHANT, M.A., F.R.S.E.

THE conference recently held at the University of London under the auspices of the Association of Women Clerks and Secretaries, and the memorial presented to the Prime Minister urging that the higher ranks of the Civil Service should be thrown open to women, have brought again to the front a vexed question of education. The great majority of the girls attending our secondary schools with the view of utilising their skill and knowledge in gaining a livelihood aim at being either teachers or clerks of one kind or another. The path that leads to the entrance of the teaching profession is well marked, and there can be little or no inducement to stray from it; the secretarial profession (as it may be termed, to avoid the use of the ambiguous word "clerical") has no such definite approach. It is doubtful indeed whether there is enough of common ground for the various ranks of those who wish to qualify themselves as clerks or secretaries to allow of any recognised course of training for all, even within the curriculum of the secondary school. It is clear, however, that more definite and uniform guidance can and should be devised, and to this end a frank discussion of the situation seems very desirable.

Before considering the question of suitable preparation, it will be well to ask what prospect there is that women workers in this field will ever be able to organise themselves into a recognised profession. The difficulties of such a task must not be ignored. The most obvious of these is the wide range of capacity required between the more or less mechanical stenographer and typist and the highly-skilled administrator. Another difficulty that is rarely faced with complete candour in all its aspects arises out of the economic disadvantage at which women must always find themselves in virtue of their sex. As a good feminist, I

hasten to add what is to be understood by this ominous phrase. There are, of course, certain disabilities for women in the field of secretarial and administrative work which are entirely artificial, and which every friend of progress must wish to see removed. It is quite indefensible, for example, that women should be debarred from becoming First and Second Division clerks in the Civil Service. We may hope, moreover, that in time sufficient solidarity will be reached to secure a minimum living wage in this class of work—that is to say, that parents will come to realise the shortsightedness of subsidising their daughters, and thus enabling them to undersell their less fortunate competitors.

But the hope, in which many are ready to indulge, that when all conventional restrictions are removed women will be able to command the same salaries for secretarial work as are now paid to men, is illusory. A common standard of pay for both sexes may be established for certain posts at the top of the tree, where the services of women are held to be specially valuable by the general sense of the community, but such equality can never rule in the open market. Salaries are determined only to a very small extent by a vague sense of justice; they depend almost entirely on the joint influence of competition and the standard of subsistence. Now, until there is a much wider choice of careers for girls than there is any reason to anticipate for a long time to come, the competition of women clerks and secretaries among themselves is bound to have a depressing effect upon salaries, while in their competition with men they are at a double disadvantage. On the one hand, the duration of their professional life is more uncertain, for no woman can pledge herself never to marry and give up her work, while on the other hand her subsistence minimum is necessarily much lower than that of a man, who has normally to support a wife and family as well as himself. In short, women must expect employment in this direction only in virtue of their

ability and willingness to render as good service as men at the considerably lower scale which their economic position enables them to accept.

These considerations have an important bearing on the question of the preparation of would-be clerks and secretaries. It is the aim of a certain class of employers to find cheap labour even if it be inefficient, and many parents think it in their interest to aid their daughters, and even to urge them, to supply this want; but while the legislature may well hesitate to interfere directly with such unholy bargains, it is certainly not the business of disinterested educational authorities to lend them any countenance. At the same time, it is natural and reasonable to distinguish between an ideal course of study, which would become possible only when the profession was fully organised and placed on a sound economic basis, and a transitional curriculum, which should make some concession to present conditions while not losing sight of higher aims. It may be hoped that the Association of Women Clerks and Secretaries will before long find itself strong enough to form a recognised union, which, among other measures of self-protection, would be able to fix a minimum education qualification for membership. It was indeed in view of some step of this kind that the conference was summoned, so that a general understanding might be reached between those whose practical experience in the profession had taught them its most urgent needs, and those whose position in the educational world enabled them to suggest or provide the most fitting preparation.

The main questions in debate were the following: At what age should professional training begin? How far, if at all, should it proceed alongside of more general studies? How far, if at all, should it be provided within the secondary school? What should be the nature of the professional curriculum? What satisfactory test of efficiency can be devised? Though no formal resolutions were passed at the meeting in regard to these or any other points, there was considerable unanimity on all vital matters, differences of opinion arising chiefly on the question of the need for temporary compromises. Thus no one contested the desirability of postponing all strictly professional training until the age of sixteen at least had been reached, and the extension of the period of general education up to the age of even eighteen was urged, while on the other hand it was realised that in certain cases it might be politic for the present to bribe girls to remain at a secondary school by offering them a certain amount of technical training

even before the age of sixteen. The decision in regard to age would, of course, materially affect the answers that might be made to the remaining questions, so that no very definite decision could be reached, but the leading note of the speakers was their insistence on the value of an all-round development of intelligence in relation to the affairs of contemporary life. The suggestions that are now to be offered are based mainly on the views expressed in the course of the discussion, though these were not always clearly formulated.

It may be assumed that under normal conditions the course of general instruction at a secondary school should not be disturbed by the intrusion of any purely technical studies until the age of sixteen is past, though before that point certain options may well have been allowed that would give opportunity for following a practical bent. In this connection it is to be noted that the curriculum in girls' schools is of a much more reasonable character than that which is commonly provided for boys, and that the more completely it is fitted to supply a good general education the better it would be adapted to the special needs of those who wish to become clerks or secretaries. It would seem eminently desirable that such aspirants should continue at the secondary school between the ages of sixteen and eighteen, being provided with a specialised course of study that would bear more directly on the needs of their future profession, but wherever it is possible it would be well to insist that no subject should be included in such a course which is not genuinely educative in the widest sense. The acquisition of such mechanical arts as stenography and typewriting should be relegated to technical colleges, where according to general testimony proficiency can be gained by well-educated girls in a period varying from six to nine months.

What, then, should be the character of the professional course that is to be offered during the last two years of an extended school life? The girl who has received a good general education up to the age of sixteen can afford to discontinue some of her studies for the sake of concentrating upon others. She need be troubled no longer with formal grammar, and her English lessons will henceforth include only literature and composition. A wide course of reading is one of the most important requisites, and this ought to be chosen from modern authors, including examples of the best journalism. The composition lessons, in which oral as well as written expression should have free play, need not be given any technical colour. "Commercial correspondence" is an abomination; a sufficient knowledge of the

ordinary forms of letter-writing should be imparted in every course of English composition, whether professional or not, while the special jargon of each business or office can be readily acquired by any intelligent girl when it becomes necessary. History also should be studied in its latest phases. The lessons should deal with present-day institutions, the rights and duties of citizens, the social and political problems of the hour. The lessons on current events, which are already given in some of the best schools, might with advantage be amplified so as to embrace all this wide variety of topics. Along with some insight into elementary economics there should be given a little knowledge of the everyday practice of law and commerce. If a satisfactory aptitude in French has been gained at the age of sixteen some intensive study can be given to German during the next two years. The knowledge of modern foreign languages thus acquired will be ample for general purposes, though, of course, those who wish to specialise in this direction would need to supplement their studies by a year's residence abroad. The higher branches of mathematics would find no necessary place in this course, but the study of arithmetic would, of course, be continued, special attention being given to the means of dealing with statistical problems of all kinds. In connection with this, the rudiments of book-keeping should be taught, but only to the extent to which it could be turned to useful account in everyday life. It is useless to teach any more elaborate kind of book-keeping when the exact destination of each pupil is unknown.

Two points should be specially noticed in regard to this scheme. In the first place, it would absorb only about two-thirds of the available time; in the second place, there is no part of the course that could not be followed with interest and advantage by any girl in the school, irrespective of her probable career. It would seem, then, that suitable provision can be made in the secondary school for girls who wish to be clerks or secretaries without exhausting all their energies in the process, or isolating them in a so-called "commercial" section with a lower prestige than that enjoyed by other sections. It might be necessary for some schools at first to fill up the vacant time during the two years of specialism with shorthand and typewriting, but headmistresses who are able to keep these subjects at arm's length will be anxious to encourage the girls to use the opportunity to supplement their professional studies by continuing the scientific or artistic pursuits in which they may have gained an interest.

## THE KINEMATOGRAPH AND GEOGRAPHY.

By J. FAIRGRIEVE, M.A.

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IT was stated in THE SCHOOL WORLD for October, 1912, that "the proposition that the kinematograph offers possibilities as an educational instrument requires little argument," and geography is one of the subjects in which the kinematograph would appear to be of most use. The subject-matter, unlike that dealt with in other school subjects, is remote from actual experience, and the kinematograph seems to offer some way out of the difficulty this introduces.

It is true that the learning of capes and bays is almost a thing of the past, and we are glad that mere rote work has been abolished. Now we talk of relief and land-forms, of equatorial forests and of steppe-lands, of cotton manufacture and of wheat growing, of stream erosion and of irrigation, and we encourage the children to think; but it must be remembered that unless these names really mean something to the pupils they are not of any more value than capes and bays as educational material. Capes and bays were *real* to the old voyagers who first learned them. They had their orders: "Doe you drawe the maner of biting in of every bay and the entrance of every harborow or river's mouth with the lying out of every point or headland." These bays and headlands were not only real, they were useful; and if the descendants of the sailors mistook the names for the things it should be a warning not to make similar mistakes again.

The trouble is how to avoid making the mistake. It is certainly best to see the real thing; but we can ourselves see little, and we cannot, even in the most favourable circumstances, take our pupils with us to see more than a small portion of that which we ourselves see. If we had to trust only to what was seen, our work would have little value. Pictures of various kinds have been used with great success, and it is not too much to say that a very great proportion of the geography which is real to children has been made so by means of pictures.

One does not undervalue description, but oral description depends explicitly or implicitly on comparison of the known with the unknown, and if there is no objective reality, or if there is a poor one, the work is correspondingly poor or futile. It is, of course, true that a realisation of the mere outward appearance of things is not geography of a very high type, but to teach the higher philosophy of geography to pupils who have no idea of the

outward appearance of things is worse than thinking one can get figs from thistles; it is equivalent to cultivating a dry stump with no roots and expecting fruit. It is obvious that in very many cases the appearance of things is better shown by the kinematograph than by any other method. The question then arises how best it may be used to the advantage of geography. There are at any rate three ways in which films may be used.

(1) In public picture theatres films may be shown which have a geographical bearing. With these we have here nothing to do, except to note that films may be entirely suitable for such places and yet not suitable for school and class use.

(2) There may be exhibitions of definitely educational subjects in large halls. These exhibitions may vary greatly in size; they may be given to a number of schools together or may be given to individual classes. They are, however, similar in this, that not only are they definitely educational, but they take up some considerable time. Selections of films would be shown with little or nothing in common, and it is obvious that the best is not thus made of them. Though educational, they are of the nature of extras, and at best either are illustrations of work that has been done or supply suggestions for future work. These exhibitions may nevertheless be of great value, and for most subjects perhaps this is all that need be attempted; but geography is on a different footing.

(3) Films dealing with natural science, say, are illustrative and supplementary. They properly would be shown after suitable material has been handled in class, in order to give coherence to the teaching, to show as a whole facts hitherto considered separately, or to show more complicated examples of processes treated simply in class. But the geographical film supplies the basal geographical material; it is not only illustrative, but fundamental. From this difference some important results follow: (a) being basal, the pictures should come first, and must be dealt with as other lesson material in practical work; they should be in the class-room; (b) being basal, simple material should be dealt with; (c) being basal, long exhibitions are quite unsuitable. It would seem evident, then, that in order to make the best use of the kinematograph in teaching geography it should be in the geography class-room and should be used like any other piece of apparatus in the ordinary teaching. There should be no more suggestion of show or entertainment in its use than there is in the use of a balance, a bunsen burner, or a paint-box.

This may seem impossible, and in many cases it may be so; but "impossible" is a

relative term. It may help towards making the kinematograph possible if one looks the difficulties in the face and sees whether they *are* difficulties, and if they are, how they may be removed.

One criticism of the kinematograph is indeed serious, and would, if true, be sufficient reason for its non-use. The criticism is that the kinematograph *stunts the imagination*. It is a little difficult to see why. If it means that so much will be shown that there would be nothing left unseen to be imagined, there is some misapprehension either as to the amount of geographical material available or of the length of time that may be given. Seeing the real thing, which would appear to be a worse way of stunting the imagination, has been looked on with favour. It is true that the globe-trotter may look and not see, but that has not prevented the "grand tour" and "seeing the world" from being considered a fine education. If it means that the imagination is stunted because there is no personal effort and because one sees only a presentation and not the real thing, one may grant that it would be better to see the country afoot than from a train or motor-car and yet point out that there are advantages in the rapid review from a train. In any case it is surely better to see something than nothing at all, unless the geography we wish to teach is akin to that of the ancients, in which imagination ran riot in inaccuracies. If it is an accurate imagination that one trains, neither the grand tour nor the kinematograph can do much harm. In fact, if the kinematograph is really made the most of in the class-room, it should give practice in seeing and in correct imagining; and even if the kinematograph were to present every possible geographical phenomenon, every phase of human activity, there remains much that by no possibility can be seen. One requires imagination to see a country whole after the parts have been seen, imagination to feel the whole world as an organism made up of many growing, pulsating organisms animate and inanimate.

Another criticism is that the kinematograph is *bad for the eyes*. This, again, is most serious, and it must be admitted that there is some foundation for the charge. This is scarcely the place to examine the criticism in detail, as it applies to all forms of kinematograph display, educational and recreative, but it may be pointed out that humanity has had to put up with a good many things that were bad before the perfecting of a new invention, because of the advantages which the invention gave, and the more the invention is used the quicker will the mechanical disadvantages be removed. Even within the last six months as

the result of scientific investigation a small improvement has been made to aid in reducing "flicker." If a single personal experience is worth anything, the author might say that in his own case eye-fatigue as measured by ordinary sensations is about twice as great at the National Gallery as at a picture theatre, and yet he does not suggest that the National Gallery should be closed; he only takes it in smaller doses. Further, in the geography class-room under the conditions suggested above, films would normally be shown for a very short time, much shorter than under any other conditions; and whatever objections apply would have less force in the classroom than elsewhere.

Another serious difficulty is the question of cost—initial cost of apparatus and accessories and the running cost of films. With regard to the former, if the machine is used for demonstration before large numbers a full-sized machine is necessary. Smaller and less elaborate machines are now, however, being made. Hitherto no one has wished to use a small machine and none has been produced; but if there was a demand there is no doubt machines would be produced quite suitable for class-use. Butcher and Sons, of Farringdon Avenue, produce two forms of small machines costing with accessories less than £15. Zimmermann, 13, Bartlett's Buildings, Holborn, and Hammel, 273, Hatton Garden, E.C., have instruments more or less suitable, and Beard, of the Old Kent Road, is also producing a small model. Butcher's machine may be used with the special power circuit, but his and the others may also be run from the ordinary lighting circuit. Another instrument, the Pathéscope, is to be had which has possibilities for classroom teaching, but is rendered practically useless for the present by not using the standard size of film. In this machine the light is generated by the same turning movement as causes the film to pass before the lens; it is thus independent of any source of light-supply. The cost is £15, but there are only about eighty films of 300 ft. each which fit the instrument, and of these only some fourteen or fifteen are even partly geographical.

The cost is further increased because the ordinary celluloid film is highly inflammable, and to prevent the chance of fire the instrument must be fitted with fire-proof spool boxes, and the whole enclosed in a fireproof apartment. Movable iron structures cost £7 or £8. To obviate this difficulty non-flam films of various makes are used, which may char when heated strongly, but do not burst into flame. These films are, of course, more costly in themselves and are under other disadvantages. They may be bought outright or may be hired.

Hiring may be done by paying a lump sum per week or year, or special films may be hired at special rates. The Pathéscope non-flam films may be hired at the rate of 2s. per spool of 300 ft. per day, or 4s. per week. For the ordinary films one pays from 5s. to £1 per spool of 1,000 ft.

There is the further difficulty that few people have considered the *kind of films which may be of use* in geography teaching. Those who have taken pictures have been concerned with their external interest or suitability for the picture palace, and do not know what are the necessary characteristics of films to be used for teaching as distinguished from those that have some educational value, and few teachers who might know have considered the matter at all. Film publishers have erroneously thought that the film would completely supplant the slide, while the best teachers are only just realising the advantage of the use of the latter, and the administrators have not considered the conditions under which the greatest advantage can be obtained from its use. The slide has certain advantages over the film. Nothing in the world or out of it is absolutely at rest, but some parts move slowly relatively to others. Whenever the emphasis is on the fixed condition, then the slide or picture is the proper thing to use, and even when movement is considered it may be useful for analytic purposes to show the process as it is at one time rather than as it is becoming. Thus, even for studying movement the lantern-slide is often the better.

The function of the film is now obvious. Living is not static, but dynamic. It is doing rather than being, and whenever the emphasis is on process rather than existence the film has obvious advantages over the slide. The most fundamental processes used by primitive peoples, as well as the most important processes of modern civilisation, should be known by the citizen of to-day, and the film can show these better than can be done in any other way. But, further, just as the slide may sometimes be more satisfactory than the film in analysing process, so the film may be more satisfactory than the slide in synthesis, in speeding-up processes normally slow or in showing space-relations which cannot be shown on a single slide. Many aspects of the topographic cycle and of the appearance of land-forms could be illustrated in this way.

Then there is the difficulty of *time*; but the object of introducing the kinematograph is to save time. The business man does not use the telephone and typewriter and card indices to fill up leisure moments, but to allow of more work being done in the long run. Of course, he may waste his time with frivolous con-

versations over the 'phone, or he may keep his instrument carefully covered up in the basement or only use one at a public call-office. In the same way one may show films that do not help teaching or may keep the instrument where it requires trouble to get at it; but if it is used in the same sense as the telephone is used—just when it is wanted—it will save time, not waste it. Films for classroom use should be short, as simple as possible, obvious, and—this being where great numbers of so-called geographical films entirely fail—with nothing that distracts attention from the point to be made. Many, if not most, travel films are trivial and show really nothing of value for whole minutes at a time, and then the scenes shown are often so complex that they only confuse. Boys may dive for coins in some out-of-the-way parts of Africa, but to introduce the incident is to waste time and obviously leaves a wrong impression. *One film of 50 ft., taking a minute to run through, showing some definite process of real geographical significance that may form the basis of a lesson, is not only cheaper, but is of more value for teaching than hours of confusing travel films, and saves time in all sorts of unexpected ways.*

There is also the difficulty of knowing *where to get films* even when one knows what is wanted, and the difficulty of finding out is increased by the fact that few film publishers issue catalogues of their films. There are extremely few films of 50 or 100 ft. that have been carefully thought out so as to give the best result for teaching purposes. The following notes, however, give some indication of what is obtained comparatively easily by the ordinary channels at the present time. The only really extensive detailed catalogue of geographical films for sale is that published by the Charles Urban Trading Co., Ltd., 89-91, Wardour Street, W. These films cost 4d. a foot on celluloid or 4½d. on a non-inflammable base. Quite suitable geographical subjects are "Indian Tea-growing," 435 ft.; "Cattle-rearing, Uruguay," 300 ft.; "Logging, Norway," 180 ft.; "Cotton, Sugar and Date Growing in Nile Delta," 410 ft.; "Herring-fishing," 500ft.; "Whaling," 450 ft.; "Steelmaking," 450 ft.; "Making of a Newspaper," 700 ft.; "Potato Cultivating," 520 ft.; "Slate Mining," 540 ft. Other processes occur as parts of films not otherwise so useful: spinning flax, peat-cutting, launching of a vessel, officers taking mid-day observations. Scenic films which are of significance include "Railway from Salisbury to Plymouth," 1,000 ft.; "North Wales," 1,300 ft.; "Scotland," 540 ft.; "Ascent and Descent of Snowdon," 675 ft.; "Through the Brenner," 375 ft.; "Along the Riviera," 150 ft.; "On Steamer, Lake Lucerne," 375 ft.;

"Panorama of Maritime Alps," 50 ft.; "Marseilles along Sea-front," 100 ft.; "Darjeeling Himalayan Railway," 238 ft. Life in other lands is illustrated by "Life on the Zambezi," 420 ft., though the latter part should be omitted; "Central African Natives," 500 ft.; "Aden," 325 ft.; some excellent short lengths—60 ft. to 120 ft.—of life in Egypt; Algiers, 400 ft.; Japan, 440 ft.; Borneo, 450 ft.; Borneo, short lengths. There are many films of Switzerland, but they emphasise scenic beauties rather than the human activities.

Pathé Frères have an enormous stock of valuable films, many on a non-flam base, both for sale and hire, but the absence of a published catalogue (except for the Pathéscope) makes it almost impossible to find out what films really are suitable for geographical work. "The Vintage in Burgundy," 460 ft.; "The Rubber Industry in Malaysia," 360 ft.; "The Cultivation of Manioc and the Preparation of Tapioca at Malacca," 445 ft.; "Cultivation of Coffee at Santos," 480 ft., are useful as examples of processes. Anyone interested should write to 51, Rupert Street, London, W. Butcher and Sons, of Farringdon Avenue, publish a few films at 4d. a foot and supply others. "The Lachine Rapids," 320 ft.; "Niagara," 420 ft.; "Harvesting in Western Canada," 300 ft.; "Building of a Transcontinental Railway," 630 ft.; "Apple Industry in Canada," 225 ft.; "Porcelain-making, Worcester," 485 ft.; "Goldmining in Rhodesia," 235 ft., are films that may be used. In addition they supply 50-ft. films on non-flam base showing "Lachine Rapids," "Railway Building," "Harvesting," "Porcelain-making."

Kinemacolor films, being primarily pictures, are not so useful, and the instrument requires special fittings and the operator a special licence. Also the films are long. Egypt and Nile, Yarmouth fishing, Jamaica sugar, Ceylon tea, orange culture, Niagara, give opportunities not only for showing colour effects, but for good geographical teaching. In addition the firm supplies a film showing by means of a sectional diagram how a vessel passes from one lock to another of the Panama Canal. It has also a film showing a coloured map of the Balkan area, the various portions of which from time to time assume different tints showing the political changes since 1360 at a rate of about 65 million times their proper speed.

M. P. Sales, 86, Wardour Street, and Jury's, 7A, Upper St. Martin's Lane, also publish some geographical films at 4d. a foot, but do not issue a catalogue. Films showing Australian and New Zealand life are also let out by the Commonwealth and New Zealand



Governments to any individual lecturer or lecturing organisation of good repute without charge. The pastoral industry, mining, farming, and irrigation are all thus illustrated. It is likely that the Union of South Africa will soon have films of the same kind. Second-hand films may sometimes be bought cheaply, but obviously the condition of these films is not always quite satisfactory. Baer and Co., 28, Gerrard Street, and The Film Service, 11, Denman Street, supply films at 1d. per foot and under; many of these have geographical value. Both Butcher and Jury also supply second-hand films at about the same price.

### EDUCATIONAL CONSCRIPTION.

By G. W. SAMSON, M.A.

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**T**HE question of compulsory attendance at continuation schools, which has been so frequently discussed of late, is usually dealt with mainly from the point of view of the educational legislator or administrator. There can be no doubt that in the interests of employer and employed, and in those of the nation at large, some steps must be taken to prevent the present enormous waste of educational effort. But before any decided steps are taken to make attendance at evening schools compulsory, the question ought to be considered from the point of view of those most immediately interested, the teacher and the student. It is easy to make attendance at school compulsory, but, as we have already learnt from the elementary school, those who only attend because of compulsion may derive little or no benefit themselves, and may prove a serious hindrance to those who would attend voluntarily. If the principle of compulsion is merely applied to the present system of continuation classes, without any consideration of the fresh difficulties which it will produce, failure is inevitable.

At present, even in those classes which are attended almost exclusively by voluntary students, an intelligent and unprejudiced observer cannot help noticing many defects. The students are often lamentably ill-prepared for the work they wish to undertake, their attendance falls off very much towards the end of the session, and the percentage of those who have studied efficiently is smaller still. In many of the subjects taught in these classes an intelligent student with a suitable text-book could make far better progress working independently, with only a scanty amount of guidance. The classes are often absurdly large, so that individual attention is impossible.

But these students are nearly all voluntary, their presence implies a desire to learn, and the question of discipline does not arise.

If, however, the average student is no longer attending because he wishes to do so, but because he is compelled—either directly by the State or indirectly through his employer—several new difficulties will arise, though some of the old, such as irregular attendance, may disappear.

It is extremely doubtful whether evening work is desirable for the average adolescent at all. The consensus of medical opinion would probably condemn it, in most cases, as vigorously as it usually condemns infant schools. A boy of fifteen who has done seven or eight hours' work, whether manual or clerical, is in no suitable condition to undergo the strain of attending evening school for another two hours. The effort is in no way comparable to that imposed on the ordinary secondary schoolboy by his homework. Even if the physical conditions, such as warmth, ventilation, seating accommodation, are good, the effort of attention for two hours without intermission in a state of bodily fatigue is extremely trying, and one which the best of wills may find impossible. But if the benches are to be filled with crowds of unwilling conscripts, whose only concern is to be marked present, the probability of any effort is too remote for speculation. If continuation schools are to be made compulsory, the only rational time for them to meet is before, not after, the day's work.

It is improbable, however, that much attention will be paid to the medical objections to evening work, and accordingly those difficulties may be considered which are inherent in any compulsory system. From their very nature they do not come under the direct observation of those who legislate for, or discuss, our educational requirements, and there are many and weighty reasons which may conspire to conceal their existence. But none the less they do exist, and they strike at the root of all efficiency.

In voluntary classes the questions of good behaviour and industry scarcely arise. The voluntary student comes because he wishes to learn something; he has the intention of working, even if his will-power subsequently proves defective; and only as a rule in the rare instances where he is exasperated by incompetence does he disturb the peace of the class. The conscript comes because he has to; he does not desire to learn; he looks upon any work he does as he might upon unpaid overtime; and he regards the teacher as the personification of the system which stands between him and his liberty. In the majority of cases, he is at the best a passive resister; at the

worst, he is continually on the watch for opportunities for disorder. Punishment is out of the question, for he would rather be sent out of the class than stay, and expulsion for the rest of the term would suit him best of all. If his employer enforces his regular attendance it is probably the most that can be expected. There is no pressure of public opinion, such as restrains the exuberant hooligan in the streets, for the conscripts must necessarily far outnumber the voluntary students. Hitherto the goodwill of the evening student has been a great factor in overcoming the difficulties of his position—with the absence of it the original difficulties will be augmented, and a fresh and almost insuperable obstacle added. Yet the questions of maintaining discipline and ensuring industry among compulsory students have apparently received no consideration.

Much might be done to arouse interest, with the consequent advantage of good behaviour and attention, if more and intelligent consideration were given to two points which at present are largely neglected—the proper grading of students, and the choice of subjects likely to be interesting. The present voluntary system renders this neglect almost innocuous. The voluntary student grades himself and chooses the subjects which attract him. The conscript, who would not have attended voluntarily, finds no subject attractive, though some may be less repellent than others, and he is quite incapable of estimating his own intellectual fitness.

At present the product of the elementary school varies to an almost incredible extent. Those boys who win free places at the secondary schools are on the average far superior to those who come to continuation schools as voluntary students. But the gulf between the latter and the vast numbers who take up unskilled labour on leaving school is far greater. It is not possible here to discuss the causes of this great variation—it is sufficient to record its existence. But if continuation schools are to deal with the whole product of the elementary school, it is useless to proceed on the assumption that it is uniform. It is at least questionable whether a boy who has derived scarcely any discoverable advantage from eight years of whole-time education will profit very much in any case from two or three years' attendance at an evening school. It is quite certain that, if the evening school goes on with the same subjects as the day school without any proper grading, either the best students will be doing over again what they already know, or the worst will be outpaced hopelessly. In either case the subject will fail to be interesting to one portion or other of the class. Yet the grading cannot be left to the students themselves, because it will soon

be found that any reason rather than suitability will affect the choice of a class.

Still more important than the grading of students is the careful choice of subjects likely to appeal to the adolescent. In the abstract it is easy to say that the student should take subjects which may be directly useful to him and have some relation to his occupation. But those students who can find subjects related to their ordinary work will be few indeed compared with the whole number. The great majority will be engaged in unskilled labour, requiring a certain amount of easily acquired dexterity, a certain general alertness and sharpness, but still entirely remote from anything in the nature of a handicraft. There is no conceivable educational subject which can prove attractive to them in the light of their ordinary daily work. They are required to be nothing more than slightly human machines, and they form a great and continually increasing portion of the modern industrial community. They need educating more than any other class, for their daily work is the least educative, and yet less than any other class are they capable of being interested. A boy passes eight hours a day feeding a machine which contributes to the production eventually of a tin box. He goes through identically the same movements hour after hour, and day after day. Some benevolent authority compels him to learn English, practical mathematics, and general elementary science. Where does any one of these subjects touch his ordinary existence? How can he see any immediate or future use in them?

The educationist may give reasons why he should find them useful or interesting, but the boy does not agree with him. Whether this attitude is perverse or natural does not matter; it remains true that his attendance may be enforced but not his attention. If compulsory evening schools are to educate their students and not to remain contented with elaborate programmes and attendance statistics, some care must be taken to provide such subjects as may prove interesting to the ignorant adolescent.

It is my firm conviction that only those subjects which have some human interest possess the slightest capacity for attracting this type. If the boy has gone through eight years of school life without having his interest awakened in mathematics, literature, or science, it is useless to persist with them. It is better that he should have an opportunity of trying something in which he may conceivably take an interest, than that he should come in a sullen and rebellious spirit to classes which offer no attraction except to those who are interested in the subject already. Economics, history, geography, are all susceptible of treat-

ment which would arouse the interest of the ordinary adolescent. After all, the ordinary business man who has enjoyed the benefits of secondary education does not as a rule take much interest in literature, mathematics, or science. It is useless to expect higher ideals in the unskilled labourer, whose circle of experience is limited, and whose elementary education has been defective. The ordinary subjects taught in the ordinary manner have been tried and found wanting. It is time to consider carefully and deliberately whether, by choice of subject or by manner of presentation, it is not possible to arouse and retain the interest of the student. Unless this is done, the only benefit from the institution of compulsory continuation schools will be the removal of the adolescent working-class population from the streets for two hours. It seems scarcely worth while to instal a new and expensive system to achieve this purely negative result.

### SPEAKING THE SPEECH.

By CHARLES POWELL.

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NOTHING presents a stronger case for the readjustment of educational values than the continued absence of systematic training in the speech sounds of English and the oral reading of its literature. It is not merely that the student emerges from school and college with no perception of tonal beauty in prose or verse, or at any rate with no power to render it vocal: it is that he has not even a knowledge of his speech sounds in the making or of the principles which order their progression when made. Of the action of the heart and those other organs which lie outside his control physiology and hygiene have probably taught him much; but of the machinery of speech he has learnt little or nothing. It is not so with the other forms of expression. Even an elementary training in art or music involves some knowledge, however slight, of the nature and working of the medium. Yet vocal expression, the most accessible form of all, is treated as if for that very reason it were independent of such knowledge.

Here, let it be said at once, is no urging of the claim for conventional elocution, for denaturalising reading and speaking by conscious conformity to models which are false creations and standards which do not exist; but rather a plea for replacing the untrained impulse by a cultured intuition, that the speaker, losing the process in the product, may preserve his spontaneity, yet know the shape he has fashioned and rate it at its true value.

If reading in schools begins with the oral

recognition of speech-sounds and the visual recognition of word-forms, it would almost appear to end there, too. Certain it is that large numbers of students pass through the schools and universities not only ignorant of the relation between the sounds of English and the mouth configurations by which they are determined, but unable to read with any fair measure of sense expression—to put it at its highest—the lyrics of Wordsworth or the blank verse of Milton. They may—or may not—have a general impression of Wordsworth's ideas or Milton's meaning. If they have, it is, observably, after they have spoken the words. That is, the reading is formal, nothing but the utterance of word-forms.

A simple test is the familiar invocation in "Paradise Lost." Most readers suspend the voice at least to the sixth line, and some much further. But this is to subordinate the subjects of the song—"Man's first disobedience" and its consequences—which, after all, are the true centres of attention, and give the saliency to the Being invoked—the "heavenly Muse"—which is certainly assumed. Such reading is constructional merely. The reader is feeling his way along the syntax, noting the punctuation as it comes and adjusting his voice to that. If the mind had retained its natural movement, the movement which marks spontaneous speech, if there had been any definite realisation of the successive ideas and any observance of their relative value, the construction would have been forgotten, the punctuation unnoted, and with the mind focussed on the idea behind the form, the voice would have found its centres and marked them out strong and clear.

Another test is Wordsworth's "Daffodils." Very few readers give a definite touch to any word in the first two lines:

I wandered lonely as a cloud  
That floats on high o'er vales and hills.

The voice is almost always suspended, apparently because the construction is open. But the figure of the solitary cloud is something very definite—saliency is of the essence of a simile—and should receive unmistakable emphasis. So, too, in the second verse:

Continuous as the stars that shine  
And twinkle in the Milky Way.

There must be no waiting for the syntax to close up. Expression is not determined by syntax.

But lest any reader seek refuge in the theory, which has high official support, that all poetry should be spoken in a sort of dreamy monotone, with emphasis and inflection alike eliminated, the third test may be taken from prose, from the opening of Lamb's essay, "Grace before Meat." The first sentence—

The custom of saying grace at meals had probably its origin . . . in the hunter state of man, when dinners were precarious things. . . .

—presents little difficulty. The clauses here would no doubt be duly related: they could scarcely escape. But in the sentence which follows—

In the shouts and triumphal songs with which, after a season of sharp abstinence, a lucky booty of deer's or goat's flesh would naturally be ushered home, existed, perhaps, the germ of the modern grace

—the constructional reader, heading as always for the structural terminus, sustains his voice to the close and withholds the strong inflexion from all but the last phrase. Thus once more he misses the fact that he has here a simple inversion; that "the germ of the modern grace" is not the true terminus but the starting-point; and that the sense really culminates in the sixth word or, at furthest, in "goat's flesh."

Now, if this incompetence is characteristic of the products of our educational system, there could be no real surprise when a distinguished dramatic critic, writing of the production of "Julius Cæsar" by the Oxford University Dramatic Society last year, complained of the general inability of undergraduates to speak blank verse. Sense expression was not, of course, the only element that came in for criticism: rhythm and tone were in question as well. But sense and rhythm are so closely related that without a grasp of the one you are not likely to get an adequate handling of the other. And when the same critic super-added imperfect enunciation, the case against our speech-neglecting system was pretty well complete.

Yet something could be forgiven a reader for imperfect enunciation if his expressional achievement in any way atoned, if he took care of the sense and trusted the sounds to take care of themselves. But he does not. And he does not even reverse that comfortable doctrine either. Or if he does, and so escapes the slipshod, it is only to fall into the grosser mistake of the precise. And that is the danger of neglecting the study of speech. For in the few cases—notably of prospective teachers of English—where the lack of systematic knowledge on the oral side of the language gives an uneasy sense of incompetence, the attempt at self-qualification often leads to disastrous excess. Knowing neither the analysis nor the synthesis of speech the students catch at risky hypotheses. With them it is not so much how the language is spoken as how, in all correctness, it ought to be spoken. And so we get grotesque articulation, like "Let-a-me not hold-a-my tongue" and "Entreat-a-me not-a-to

leave thee," which is based on the fallacy that because a "t" and a "d" are often treated explosively they must always be so treated, and which overlooks the real fact that both are fundamentally mutes. Or we get fanciful enunciation like

An hon-est man's the nobl-est work of God  
and

A mo-ment speech-less, motion-less, amazed,  
The throne-less mon-arch on the an-gel gazed

—where the unaccented syllables and the functional words are given the full vowel value of isolated units. But is this speaking the speech? Would the readers adopt this style in ordinary intercourse? Would they say, for example, "The post-a-man has just-a-brought-a-me a Christ-a-mas post-a-card," or "There is a bar-rell or-gann playing in our ter-race"? The truth is, of course, that such reading is both unnatural and unscientific, that the value of speech sounds is often modified by their setting, and that the language of literature has no oral values peculiar to itself. A word does not call for phonetic change in the speaking because it happens to have been taken from a printed text. "Speak the speech I pray you"—because it is the only thing you can speak. You cannot speak print.

And yet it is just the divorce of reading from speaking that lies at the root of this question: not only as it touches the fashioning of word-forms, but as it affects the whole mental approach. From the very first the mind is allowed to take an entirely different attitude and movement in the expression of another's thought from that which it takes in the expression of its own. This is seen very clearly in the process of phrasing. In natural conversation the mind moves from idea to idea, the words are grouped according to the centres of attention, and the speaker's reception of each idea always precedes the utterance of the group of words belonging to it. But in reading, the words are allowed to follow one another in a continuous stream; there are no intervals for concentration, and the reader's mind, which cannot take in a great deal at once and requires time to receive even a single impression, has not grasped the sense until all the words have been spoken. And the cry still goes up for more expression in reading! It will not come—how can it?—until the habit has been formed of taking definite impressions, and the best way to secure that is to begin with a firm repression, a repression of the voice until the mind has received the idea.

It is a formula of modern educational method that every lesson should be a lesson in English. In most quarters, no doubt, the formula is treated as a counsel of perfection. And cer-

tainly its implications are very weighty. For "English" includes spoken English, and that in itself would disqualify a multitude of teachers: not merely for defects of voice or accent—though these are more common than they should be, and it is desirable to protect the pupils from the contagion of a nasal or raucous voice and a provincial lingo—but more especially for the failure to turn even a good voice and accent to account. It is not enough that a teacher's voice should be cared for only with a view to its creation, preservation, and all the blessings of audibility. It should be tuned to achieve smoothness and at least a measure of music, both to safeguard the æsthetic interests of the pupils and to become an effective instrument for a language rich in musical qualities. It should be made and kept flexible enough to support those delicate inflectional movements which mark the relation, the subtlest relation, of ideas, and to carry those fine shades of tonal variation which reveal the very texture of a thought or an emotion and convey the very atmosphere of a situation or a scene. The organs of speech should be trained to get the sound-shapes true, alike for the sake of clearness, the integrity of the mother-tongue and the melodic value of words, especially in verse. Both voice and speech should be nursed into a movement of natural rhythm which will override formalities of metre and be proportionate to the definiteness, depth, and energy of the thinking. Then, indeed, could every lesson be a lesson in English, and the reproach of according oral study to any modern language but our own would be wiped out.

**QUANTITATIVE GEOGRAPHY.**

By B. C. WALLIS, B.Sc., F.C.P., F.R.G.S.

SCIENTIFIC geography necessitates at times an appeal to numerical data. These data are found in the statistical Blue-books, and hence geography which deals with numbers has been vaguely termed "Statistical Geography," although such a name is a misnomer. Numerical data for geographical problems are quantities merely based upon statistical returns, and have no more relation to statistics than the averages which are used in the geographical study of climate have to the "Daily Weather Report"; it is, therefore, time that a definite name should be given to the numerical aspect of geography, and, on the analogy of chemistry, "quantitative geography" is suggested.

To the degree in which it is claimed that geography is a science, to that degree must geography use scientific methods, and the elementary teaching of science requires that

the pupil should attempt to solve for himself problems set before him; at this juncture it is not necessary to discuss the reason why the pupils should face specific problems. The pupil will be provided with certain facts, or he may be led to observe these facts; he must find the conclusions to which such facts lead. Whenever the facts are numerical—and they cannot, in many cases, be otherwise—whether we use numbers or words, such as many, great, or large—the method of solution should be quantitative.

For the purpose of illustration, let us assume that the pupil has reached the stage at which he knows the main features regarding the great natural regions of the world; he is faced with such a question as "What is the use of the world's grass-lands?" or, differently stated, "In what ways are the efforts of men directed and limited by the grass-lands?" He remembers that certain inhabitants of grass-lands are, for example, shepherds. "What are the facts regarding the world's shepherds?" He may attempt to find an answer to this question by means of travellers' narratives and photographs; he may read of the shepherds of the semi-arid lands of Eurasia, the stock-roads of Australia, the shepherds of the pampas, the emigrants to New Zealand whose first care is sheep. He may think of the shepherd at home, and wonder in what relation he stands to the shepherds of other countries in Europe. Sooner or later he will think of the relative importance of these various kinds of shepherds in relation to each other, and in relation to those elsewhere in the world. How many are there of each kind? Why are there so many of each kind?—are some of the questions which may arise, or which may be put to him for investigation.

He will find that it becomes a matter of great difficulty to arrive at the facts which he seeks, and will therefore be forced to consider other data which may supply him with an estimate in answer to these queries. Circumstances compel him, or his teacher, to turn to sets of correlated data, of which the simplest will consist of a table of the number of sheep in various countries. From this table he can obtain a table of geographical facts as below:—

*Percentages of the World's Sheep in Various Countries.*

Australia ... .. 14	British South Africa... 5
Argentina ... .. 12	New Zealand ... .. 4
Russia... .. 12	India ... .. 4
Turkey ... .. 10	Uruguay ... .. 3
United States ... .. 10	France ... .. 3
United Kingdom ... 5	Spain ... .. 3
Total ... .. 85	

This table yields to the pupil some idea of the relative importance, so far as sheep are

concerned, of the downs, the pampas, the steppes, &c.; and also some notion of the numbers of shepherds who live in these various countries. These notions lead to a second problem: "What do these shepherds do with these sheep?"

The main part of the reply to this question is reached from the consideration of the data from which he calculates: (i.) the percentages of the world's wool produced in various countries; (ii.) the percentages of the mutton and wool provided for the inhabitants of the United Kingdom by various countries. Hence the pupil reaches the distinctions between three different kinds of shepherds. First, there are shepherds, such as those of India and the eastern steppe-lands, who rear sheep for their own local purposes, for their own food, clothes, and tents; secondly, some shepherds rear sheep for the home market, for the consumption of their produce within their own country or locality, *e.g.*, the shepherds of the United States; and, finally, other shepherds work for the world as a whole, and their products, wool, mutton, tallow, &c., are bought and sold freely in the world's markets; these are the shepherds of Australia, &c.

At this stage the pupil is in a position to consider the limitations imposed upon man by an environment of grass-land, and he can seek for the explanations of the differences which he has noted; and his search will take him into relation with geographical facts which he would otherwise fail to notice. This lengthy illustration shows in but a meagre way how the basis of quantitative fact serves as a guide to future investigation, which in itself will frequently be quantitative.

Quantitative facts in geography are therefore not only valuable in themselves as a measurement of geographic data, but also as a starting point for comparative studies. They have, also, an additional value, since they are constant, within certain determinable limitations. Because of this constancy, it is permissible to ask the pupil when he has determined the relative values numerically to commit them to memory. One convenient method of summarising such facts for this purpose may be borrowed from chemical work: the use of formulæ. It will suffice to mention but a few examples.

*World production of coffee* is summarised as Br.<sub>4</sub> R.<sub>1</sub>, which means that Brazil produces four parts and the rest of the world—always denoted by the letter R—one part.

*World production of cotton* = Us.<sub>3</sub> In.<sub>1</sub> R.<sub>1</sub>, which means that the United States produces  $\frac{3}{5}$  and India  $\frac{1}{5}$  of the world's supply of cotton.

*British supplies of cotton* are summarised in the form Us.<sub>2</sub> R.<sub>1</sub>, which means that the

United States provides  $\frac{2}{3}$  of our cotton supply. These are simple formulæ, and are valuable on that account.

The formulæ for the results obtained with reference to sheep—Au.<sub>6</sub> Ag.<sub>5</sub> Rs.<sub>5</sub> Us.<sub>4</sub> R.<sub>20</sub>, which means that Australia contains  $\frac{6}{40} = \frac{1}{7}$ , Argentina and Russia contain each  $\frac{5}{40} = \frac{1}{8}$ , the United States  $\frac{4}{40} = \frac{1}{10}$ , and also that these four countries contain half the world's sheep—and with reference to wool—Au.<sub>2</sub> Ag.<sub>1</sub> Rs.<sub>1</sub> Us.<sub>1</sub> R.<sub>4</sub>—are more complicated, but at the same time serve to show how the number of sheep and the quantity of wool produced are related to each other.

The pupil discovers and uses formulæ of this description after he has made a study of the quantitative facts, and he will be ready to accept as true the statement that formulæ of this description are comparatively stable, since they depend upon factors which do not change rapidly, and are likely to change on the whole in all countries to pretty much the same degree and in the same sense. At this stage it will be convenient to discuss and use certain formulæ which are not so stable, and, from the very nature of the case, are likely to fluctuate more or less discordantly.

The great group of such formulæ consists of those which refer to mineral production and supplies. For example, the formula Us.<sub>7</sub> Uk.<sub>5</sub> Ge.<sub>4</sub> R.<sub>4</sub>, which summarises the *world production of coal*—United States  $\frac{7}{20}$ , the United Kingdom  $\frac{1}{4}$ , Germany  $\frac{1}{5}$ —does not summarise the relative production of this mineral some years ago.

Similarly, the formula for the *world production of copper*—Us.<sub>3</sub> Mx.<sub>1</sub> R.<sub>1</sub>, which means that the United States and Mexico produce  $\frac{3}{5}$  and  $\frac{1}{5}$  of the world's copper respectively—is liable to somewhat violent fluctuations as unexploited deposits are worked because for some reason or other they have come within reach of the world's markets. The investigation of such facts is in itself a valuable study because of this relative instability.

A second case of change occurs in regard to wheat: the formula for *world production of wheat*—Us.<sub>2</sub> Rs.<sub>2</sub> Fr.<sub>1</sub> R.<sub>5</sub>—is probably fairly stable; but the formula for the *supplies of wheat to the British Isles* is less steady. The relation of the home-grown to the imported wheat may be shown as H.<sub>1</sub> R.<sub>4</sub>, which means that the home supply is  $\frac{1}{5}$  of the total supply: the quantities imported may be summarised as Us.<sub>1</sub> Be.<sub>1</sub> R.<sub>1</sub>, which means that the United States and the British Empire supply each  $\frac{1}{3}$  of the imports. These two formulæ may be put together as H.<sub>1</sub> (Us.<sub>1</sub> Be.<sub>1</sub> R.<sub>1</sub>)<sub>4</sub>, which means, for example, that the United States supply  $\frac{1}{3}$  of  $\frac{4}{5}$  of the total consumption of wheat in the British Isles.

It may be suggested that these formulæ and the constant values upon which they depend are useless for teaching purposes upon two grounds: that they are too complicated, and that they do not picture sufficiently accurately the data as supplied by the Blue Books. The answer to the first objection depends upon experience. Let the teacher try them, let him commence with the easy examples; if the pupils manifest interest and keenness, then, and then only, should he proceed to the more difficult examples. It is certain that such formulæ are of assistance to certain types of minds.

The second objection may be summarily dismissed. Consider as an analogy the climatic data, which are freely accepted and used; the annual rainfall of Greenwich is 24 inches, yet 36 inches in one case and 18 inches as a minimum are recorded as annual falls of rain at Greenwich: this means that the average of 24 inches is more remote from the possible annual facts than any one of the quoted constant relationships.

In conclusion, the explanation of the quantitative facts so determined and so summarised necessarily brings the pupil back to the consideration of man and man's work in the universe, back to the human note which is the main feature of geography and geographical teaching. The pupil has gained in equipment; he has gained in accuracy of outlook; his geography is a preparation for citizenship and life.

### EXPERIMENTS IN THE TEACHING OF GERMAN.

By ARTHUR W. PEGRUM.  
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THE modern method of teaching a foreign language orally makes a strong appeal to the taught on the side of interest, but more especially to young students and beginners. The delight in the mere use of the language declines after a time, and is often replaced by an attitude of listlessness. At this point the oral method is in danger of extinction, and too often the old method is resuscitated.

This decline of interest can be prevented by changing the ground of appeal, not by changing the method of instruction. When the novelty of the first year's study has worn off, students cannot be expected to show great appreciation for short anecdotes, or longer fables. Some teachers can certainly make more out of such subject-matter than others, but the average teacher finds that enthusiasm is perforce absent. At this stage the language must cease to be taught as a medium for conversation pure and simple, and must be regarded as a vehicle for the conveyance of thought, as a means to the acquisition of knowledge. If the subject-matter of lessons is

selected with care and foresight, the oral method is in no danger of falling flat.

#### I.

It is recognised generally that the study of the literature of the new language is important. This study is commenced usually far too late, and in consequence is far too confined. Surely at the close of even a three years' course, a few of the great names in the literature should be known, the periods within which the authors wrote, the names of their greatest works, and interesting facts connected with their lives; these facts for the sake of general knowledge, if for no other reason. But with such information at command, learned incidentally for the most part, students are able to take a much greater interest in the passages or works read from these authors, and their knowledge is rendered more definite. In how many schools where German is taught for three years or more could the following questions be answered satisfactorily?

"Who were the following? At what period did each write? With what town or district was each connected? Give the title and indicate the contents of something written by each. Quote a passage from and mention any further fact of interest or importance about each or all of them: Luther, Goethe, Schiller, Heine, Uhland, Freiligrath, Gottfried Keller, Liliencron, Hoffman von Fallersleben, Hauptmann."

This list may at first sight look formidable, yet it is quite within the powers of students to obtain the information required in easy stages within a four years' course, and much of it within three years.

To illustrate from personal experience in the teaching of German. In the first year Dent's "New First German Book" is used. Subjects of local interest not dealt with in the book often present valuable opportunities for useful discussion in class, e.g., the tuning of the school piano, the short morning service in the hall, Christmas celebrations, the approach of Easter. In this way the vocabulary obtained in the first year is increased by at least 25 per cent. of that in the text-book, and, moreover, such discussions create a diversion which leads to pleasant and rapid assimilation of words and phrases. The following poems are discussed and memorised: "Das Tannenbaumlied"; "Des Ritters Abschied"; "Der gute Kamerad" (Uhland); "Röslein auf der Heiden" (Goethe); two verses of Luther's hymn, "Ein feste Burg"; and "Deutschland über alles in der Welt." The music to these is learned in the singing lesson, and the occasional singing of one of them during a German lesson often relieves the strain of fixed attention, and revives flagging interest and energies. The memorising is an easy process if the

subject-matter be simplified and well discussed beforehand.

During the second year are treated, in a similar manner, "Die Lorelei," "Fichtenbaum und Palme," and a prose passage upon Luther from "The History of Religion and Philosophy in Germany" (Heine); "Der Erlkönig" (Goethe); "Nebel" (two verses) and "Löwenritt" (three verses memorised) (Freiligrath). As text-books Spanhoofd's "Lehrbuch der deutschen Sprache" and his "Erstes Lesebuch" are used.

In the third year the literature studied is centred in the main around Heine and Goethe. During the first part of the year Heine's "Harzreise" is taken as a starting point, a discussion upon a walking tour in Germany being utilised to lead up to the reading of selected passages. The "Prolog" is memorised. The reading of the passages selected affords an opportunity for the discussion of episodes from Heine's Life, and of his characteristics. Then Heine's letter to his friend Moser in Berlin, in which he tells of his tour and of the preparation of his book for the Press, is introduced. "Das Fischer-mädchen," "Du bist wie eine Blume," and "Die Grenadiere" are discussed and memorised. In the latter half of the year Goethe's play, "Egmont," is read. Although difficult, experience has shown that interest above expectation is aroused in the reading. In addition, passages have been read from a letter of Goethe's from Rome, from his autobiography, "Dichtung und Wahrheit," and from Schiller's "History of the Decline of the Netherlands," all of which bear upon the drama or its hero.

During the reading the students are encouraged to offer criticism or opinions. These, though often crude, are compared with Schiller's criticism published soon after the appearance of "Egmont," and with Hehn's remarks given in his "Goethe" (Berlin, 1909). All this work leads to the acquirement of considerable information about both Schiller and Goethe. This method of teaching German has aroused sufficient interest to send some of the students to the local public library in search of further information upon the topics touched upon, and this without suggestion from the teacher.

All this is most interesting work, but, of course, demands at the outset a considerable sacrifice of time on the part of the teacher for preparation, since as yet no publisher has a suitable collection of material upon the market. Should such books appear, they could only supply material which is better sought by the teacher himself, for in research enthusiasm grows.

## II.

It should be recognised, further, that the study of literature is not the only use to which the foreign language studied should be put. Of the boys and girls who learn a foreign language, it is scarcely too much to say that not more than 15 per cent. ever make use of it after the school course has been completed. And of those who do, by far the largest number need it for scientific studies. Having "learned" French or German, they expect to be able to read books on scientific subjects in the language without encountering very great difficulties, only to find how plodding and laborious the task is. And why? They leave school without an introduction to scientific diction in French or German, or at most have been given a few crumbs to digest.

Boys especially take an interest in the study of mathematics or chemistry in a foreign tongue. When literature makes no appeal, the obvious utility of the latter does. And the oral method is the most useful and interesting method of instruction. When the teacher takes the trouble to master the necessary vocabulary in such a way as to be able to use it without hesitation, boys are very quick to assimilate it. On these lines mathematics can be started early. The four arithmetical processes afford useful practice in the first year. Lessons upon the circle, the angle, and so forth can well be given in the second year. The writer has introduced a little book on plane geometry (published in the Goschen collection at a cost of 90 pfennigs) into the third year classes. This subject is taken once a week. Before starting on a section, *e.g.*, parallels, the subject is discussed in German, new words and phrases being taught. This is followed by reading and the working of a few of the exercises given. Chemistry is treated in a somewhat similar manner, the start being delayed until the second half of the year, and again the book is chosen from the Goschen collection. Three such books can be purchased for the cost of one English publication of the type of Dent's "German Science Reader," and each has the advantage of treating its subject "an und für sich." These books are the work of eminent men, and have been well received by experts. Their subject-matter and language are therefore above reproach.

It is not suggested here that the French or German teacher should be an expert chemist or mathematician. In doing this work his aim is not to teach these subjects, but his own subject. His object should be to encourage the use of the language for the acquirement of knowledge, but not necessarily to impart that knowledge. That is the work of the book studied.



## III.

It is uncommon to find that any attempt is made to make use of French or German in English schools for the study of the history of either nation. In a three years' course it is impossible to add to the study of literature, mathematics, and chemistry any formal study of foreign history, but it is possible to make occasional use of the language lesson to throw some light on facts of history. Thus, when reading the "Grenadiere" (Heine), local colouring can be given to the Moscow campaign of 1812 by quotations from German writers, *e.g.*, Heine, "Das Buch le Grand," and Gustav Freitag, "Bilder aus der deutschen Vergangenheit," vol. iv. Luther's hymn certainly stimulates interest in, and adds knowledge to, the Reformation movement. By such incidental teaching of history through the foreign language, life is often given to dry bones, and the use of the study of sources in history is extended. In a four years' course history might well be treated in a more consistent form. It is an interesting subject at any time, and such tapping of foreign sources is not only valuable from the point of view of comparative study, but is especially stimulating.

It cannot be too often emphasised that the first and foremost aim—even duty—of the teacher is to instil into his pupils his own enthusiasm, an enthusiasm which shall carry them on to further study after schooldays are past. Many awkward problems of the present day would find a speedy solution if only teachers one and all would do their best to attract their pupils to the higher realms of thought and desire by their own inspiring influence and enthusiasm. It is well to remember that enthusiasm flourishes best in an atmosphere surcharged with gladness; it never even generates in one of listlessness or boredom.

## GRAMMATICAL REFORM.

By Prof. E. A. SONNENSCHN, M.A., D.Litt.

AT the request of the Editors of THE SCHOOL WORLD I send herewith an article summing up the situation in regard to grammatical reform, in the light of the correspondence in the May number which followed my article in the April issue. It will be impossible in this article to enter into a discussion of particular grammatical problems, or to attempt a justification of the attitude taken up by the Terminology Committee in regard to details.<sup>1</sup> One thing, however, I will say, that the recom-

<sup>1</sup> As to our justification in retaining the term "dependent" side by side with the term "subordinate," may I refer Mr. J. Thompson to Stahl's "Greek Syntax" (Heidelberg, 1907; especially p. 32)? Mr. Thompson's statement that in English grammatical gender can be ignored is not really far from the intention of the Joint Committee in its Recommendation XXXIV., p. 24 (adopted at the suggestion of the English Association).

mendations of the committee were based upon a very full and careful examination of current grammatical doctrines, and that most, if not all, of the points which have been suggested subsequently to the issue of the report were taken into consideration by the committee. I believe, therefore, that on all essential matters the committee, if it were sitting to-day, would make the same recommendations as before. Verbal improvements might perhaps be made at a few places, *e.g.*, in the paragraph to which Mr. Ritchie directs attention (Recommendation XVII., that the English "this" and "that," if used without a noun, be called demonstrative pronouns). But I do not regard the intention of that paragraph as in disagreement with the doctrine which Mr. Ritchie so well expresses.

It is satisfactory that the large majority of the correspondents in THE SCHOOL WORLD approve of the main lines of the report. The only critic who is distinctly opposed to it is Mr. J. C. Nesfield, and I fear that we shall have to regard him as an irreconcilable. I shall make no attempt to argue with him on the specific points on which he is in disagreement with the committee, except to say that I do not admit for a moment that any of the statements made by the committee are untrue or misleading,<sup>2</sup> or that the recommendations of the report render the study of English more difficult than it has been hitherto. Mr. Nesfield also complains that the report does not represent the final views of the English Association. I think the following statement of facts will show that the committee did all in its power to give the English Association a full voice in its proceedings.

The English Association was represented on the Joint Committee first by Dr. Gow and Miss Dingwall, and subsequently by Dr. Boas and Mr. Thomas.<sup>3</sup> Moreover, the views of the English Association, as expressed at its meeting on January 14th, 1910 (when the interim report was discussed and various suggestions were made), and also at several meetings of committees and branches of the English Association, have been taken into careful consideration by the Joint Committee. Bulletin No. 10 of the English Association records that the following resolution was carried by a large majority: "That this association accepts the interim report on grammatical terminology, subject to any reservation which may arise in

<sup>2</sup> It would be easy to reply to Mr. Nesfield's special points (p. 181), did space permit. In regard to the distinction drawn by the committee between verbs denoting a state and verbs denoting an act (Recommendation XL., p. 28), Mr. Nesfield has not observed that the committee is here directing attention to an important difference of usage hitherto ignored by ordinary school manuals. The facts cannot be disposed of by his arbitrary assertion that verbs like "love" and "know" can be used in the continuous form as much as any other verbs: on the contrary, "I was loving," though it has figured for centuries in Latin grammars as a translation of *amabam*, is not English, except when the verb "love" denotes an act (= "fondle" or "caress"), as in "the child was loving the cat."

<sup>3</sup> There were, of course, other members of the Joint Committee who were also members of the English Association; for example, Mr. Rushbrooke.

the course of discussion" (p. 17). Early in 1911 the English Association appointed a special sub-committee to consider the final report. It is true that the report of this sub-committee has never been formally considered by the English Association as a whole (see Bulletin No. 15, p. 10); but it is not true, as Mr. Nesfield says, that "no notice was taken of it by the Joint Committee." On the contrary, though the report, owing to an accident in transmission, for which the Joint Committee was not responsible, did not reach the Joint Committee in time for its meeting on March 18th, 1911, nevertheless the most important points therein contained were brought forward by the two members of the sub-committee who were also members of the Joint Committee (Dr. Boas and Mr. Thomas) and discussed. I have before me the minute book in which the discussion is fully recorded; and certain changes were made in the report as the result of that discussion. Mr. Nesfield's suggestion that, since the English Association as a whole has not pronounced a verdict on the final report, that report possesses no authority, is surely an untenable point of view. The members of all the associations represented on the committee were interested in the teaching of English, either directly or indirectly, as, indeed, are all the teaching associations which they represented; and it must not be forgotten that the Joint Committee contained among its members a number of scholars who have made a special study of the English language; and, as a matter of fact, questions of English grammar formed the centre of interest in the proceedings of the Joint Committee.

That the recommendations of the committee in regard to English in particular have aroused the opposition of Mr. Nesfield and others who think with him is probably due to the fact that the committee really represents a new departure in the treatment of English. This is well indicated in the communication of Mr. Ungoed (THE SCHOOL WORLD, May number, p. 184), where he speaks of the committee having not only provided a terminology common to many languages, but also having placed the teaching of English grammar upon a broader basis: "this wider outlook is of great importance and of far-reaching consequence." The essential point in this new departure is that English should be treated, not as a sort of Chinese, but as a member of the great Indo-European family of languages—in other words, that the facts of English should be classified and named in the light of their history. This does not mean that historical grammar in the ordinary sense of the term should be made prominent in school teaching,

but that pupils should be accustomed from the first to regard the facts of English from a point of view which does no violence to their history.

This method of treating English grammar was well set forth at the recent meeting of the Neuphilologentag in Frankfurt by Prof. Max Förster, of Leipzig, in his paper on "The value of historical syntax for the school," from which I will translate an extract. His paper was received with loud applause, from which we may perhaps infer that the majority of the audience were in sympathy with the speaker. After directing attention to the fact that a really satisfactory historical syntax of English has not yet been written,<sup>4</sup> and to the defects of the English school grammars in current use, Dr. Förster illustrates the need of a scientific foundation of syntax, not only for the university, but also for the practical work of teachers in schools. The following passage throws light on his whole attitude. "Why is it that so many historically false explanations have found their way into English school grammars? The reason is that their authors have been too much dominated by conceptions derived from Latin and Greek. In these languages the so-called *inner* form is always expressed in the *outer* form of the word (*i.e.* by inflections); but this is not so in English: *e.g.* the word 'like' divorced from its sentence may be a noun, an adjective, or an adverb. In such cases, where the outer form leaves us in the lurch, the grammarian who derives his ideas from the classical languages stands helpless, because he has not learned to take account of the fact that the meaning of a word, *i.e.* its inner form, is determined, not by these accidents of inflection, but by the context, or (scientifically expressed) by the function of the word in the sentence. Another example shows how fatal to sound syntactical treatment it is to base one's doctrine entirely upon the outer form instead of upon the function of the words themselves. Most English grammars maintain that there is only one case in English, *viz.* the genitive; but this statement ignores the fact that in sentences like 'he gave his father a book' we have a proper dative. It is not correct to say that the preposition 'to' has been omitted; 'father' is from every point of view a genuine old dative [applause], though, owing to the working of the *Auslautgesetz*, the dative has come to have the same form as the nominative. So, too, in German the nominative *Tag* coincides with the dative *Tag*; and just as in German the pupil learns the paradigm *der Tag, des Tages, dem Tag, den Tag*, so the English pupil ought to learn

<sup>4</sup> The new work by Prof. Jespersen promises to fill the gap.

'father, father's, father, father.' It would be easy to show how in school teaching the recognition of the dative proves a help, and not a hindrance, to the pupil."<sup>5</sup>

The same point of view is represented in the new English grammar by Marseille and Schmidt (Marburg, 1912) in a form adapted to the requirements of schools. In the preface the authors say that since the courses of study in the Oberrealschulen and the Realgymnasien have been recognised by the State as qualifying for a university career, these institutions have deepened their studies in modern languages, treating English and French in a more scientific spirit. In regard to cases, I find the following passage (p. 40): "The nominative, the dative, and the accusative have come to coincide in form, though a clear feeling for their syntactical difference still exists. Loss of the inflections has, however, had an important influence upon the order of words in the sentence. The grammatical relations which had previously been expressed by the forms of the words are now expressed by their order." The whole point of view is exactly the opposite of the attitude which Mr. Nesfield takes up when he speaks (THE SCHOOL WORLD, p. 181, see also p. 182) of the "difficulty of making the pupils understand the applicability of Latin cases to English nouns." The reason why Mr. Nesfield resents the terminology adopted by the Joint Committee is that he is under the mistaken impression that it involves a forcing of Latin grammar upon English. Thus it seems to him an insult to English scholarship. But the nominative, the accusative, the genitive, and the dative are no more "Latin cases" than English cases: their *names*, no doubt, are of Latin origin, but the *things* for which those names stand are common to all the languages of our family. Is it possible that Mr. Nesfield has overlooked this elementary fact of comparative grammar, or is he merely indulging in a little pleasantry?

It was Wundt, I think, who was the first (in the second volume of his "Völkerpsychologie," entitled "Die Sprache") to direct attention to the universality of these four cases, which he called cases of "inner determination."<sup>6</sup> The ablative, of course, stands on a different footing; it is a case which has been submerged in all the languages of our family except Latin. Apart from the ablative, the only difference between English and Latin is that most (not all) of the English case-inflections have been rubbed off by use—as, indeed, may be said of some of the

Latin ones also. What is wanted, then, is a definition of case in which function as well as form plays a prominent part. As the late Mr. R. W. Hinton well said (THE SCHOOL WORLD, p. 178), "Case relationship is still a reality, although many case-forms are extinct; and children should classify by sense, whether the guiding forms occur or not."

I believe that the point of view represented by the Terminology Committee and by the foreign leaders of thought referred to above is the point of view which will prevail in the future; and it will be seen that the real offenders against the study of English are not those who point out its relations to the other members of the Indo-Germanic family, but those who, taking a narrow view of inflection (derived from a superficial study of Latin and Greek), think they are serving the cause of English scholarship by flying in the face of history.

In conclusion, I should like to express my gratitude to Mr. MacGillivray for his article (THE SCHOOL WORLD, p. 179). He directs our attention to the fact that further steps must be taken to make the work of the Joint Committee generally known; and I echo his hope that the subject of grammatical reform will be raised at many meetings of associations concerned with school teaching in all parts of the country. The public at large is not easily moved to action in this matter: "a mere matter of terminology" seems at first sight synonymous with a matter of no importance; yet, apart from the fact that classification goes hand in hand with terminology, it must not be forgotten that, as Bacon said, "words, as a Tartar's bow, shoot back upon the understanding of the wisest and mightily entangle and pervert the judgment." In the report of the Joint Committee (published by Mr. John Murray at the price of sixpence, and now in its third edition) will be found a means of reconciling the needs of modern and ancient languages, so far as their grammar is concerned, and a means of facilitating the passage of pupils from elementary schools into secondary schools. The report does not profess to be a complete account of the whole field of grammar; it bears the modest title, "On the Terminology of Grammar."<sup>7</sup> But I think I may claim for it that, whatever its defects, it is a well-considered and consistent piece of work. For I have put it to a severe test after the lapse of two years since its publication. And I believe that other writers of grammars who consult it will find it no broken reed.

<sup>5</sup> "Bericht über die Verhandlungen der XV. Tagung des allgemeinen deutschen Neuphilologenverbandes." (Winter, Heidelberg, 1913; pp. 111-119.)

<sup>6</sup> I am not responsible for Wundt's terminology which seems to me lacking in clearness.

<sup>7</sup> On the other hand, it touches on some points which belong only to an advanced stage of learning, and are not intended to be forced upon the attention of beginners. See the passage printed in italics on p. 7 of the report.

## PERSONAL PARAGRAPHS.

**L**ORD AVEBURY, better known as Sir John Lubbock, died on May 28th at Kingsgate Castle. He became a Fellow of London University in 1865, was Vice-Chancellor from 1872 to 1880, and represented the University in Parliament from 1880 to 1900. He was a member of the Public School Commission of 1868, of the Duke of Devonshire's Science Commission of 1874, and afterwards of Lord Cross's Education Commission, so that his life was saturated with problems of higher education, especially those connected with the University of London. He was a firm supporter of the "external" side of the University, and maintained that there is no body better qualified than the Senate of the University of London to undertake the responsibility of the examinations. The Senate of his day felt strongly that every University degree should denote good grounding in (1) mathematics, (2) science, (3) classics, and (4) some modern language. The matriculation examination was framed with this view, and secured a certain amount of science and modern language teaching in the schools connected with the University. The loss by his death to science and the world of letters is as great as that to the University.

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LORD AVEBURY was one of the first men of letters to devote much attention to the study of science, and to write of it in such a way as to be understood by the general body of the people. Everyone knows something of his work in connection with bees and ants. My own first impression of him was when he delivered a speech on the blessing of friends, and what struck me most was the power of accurate and apposite quotation. After about twenty words came a quotation, or rather a series of quotations, from Socrates, Cicero, Oliver Wendell Holmes, Sir Thomas Browne, Emerson, Plutarch, Pythagoras, Mr. Nasmyth, and one could not but be impressed by the enormous extent of his reading and his true appreciation of not only the classics of old, but of the working men of his day, whom he was then addressing at the Working Men's College.

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On May 21st the death was announced of Mr. Adolph Sonnenschein at the age of eighty-eight. Mr. Sonnenschein came to this country when twenty-three years of age from Moravia, and subsequently became a naturalised British subject. In 1850 he opened a school in Highbury, which was attended by Mr. Arthur Chamberlain. He devoted his life to educational work, and received Govern-

ment recognition in 1903, when he was awarded a pension. He is perhaps best known to leaders of the present day by his books, especially those on reading and arithmetic. "The Science and Art of Arithmetic," written in conjunction with Mr. H. A. Nesbitt, has had great influence on the teaching of arithmetic in this country.

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MR. SONNENSCHN had many educational interests, among them the Working Men's College in Great Ormond Street, to which he gave his services for many years, and where he worked in conjunction with Rev. F. D. Maurice and Mr. Thomas Hughes. Two of his sons are famous educationists; the eldest is the Professor of Classics at Birmingham University, and was largely responsible for the report on grammatical terminology, and the second, Mr. W. Swan Sonnenschein, is the well-known publisher.

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MR. G. H. DANBY, formerly Director of Education for the Borough of Widnes, died suddenly at the end of May, when on his way to that town to receive a presentation in recognition of his services. Mr. Danby had been connected with education in Widnes for thirty-eight years, first as clerk to the School Board, and later as Secretary and Director of Education. Two monuments to his energy and enterprise are the system of continuation classes and the numerous science and art scholarships of considerable value instituted at Widnes when the Board of Education discontinued its scholarships. The Director of Education for the Borough of Batley is a son of Mr. Danby.

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MR. J. MILLINGTON SING, Warden of St. Edward's School, Oxford, will retire at the end of the current term. Mr. Sing, who is an M.A. of both Cambridge and Oxford, was educated at Uppingham School and Christ's College, Cambridge. He was appointed from the University to St. Edward's in 1886, and became its Warden in 1904.

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THE REV. W. H. FERGUSON, of Lancing, has been appointed to succeed Mr. Sing as Warden of St. Edward's, Oxford. Mr. Ferguson was for four years a master of the school of which he now becomes Warden; he then went to Bilton Grange School, Rugby, where he remained two years before going to Lancing in 1902. At Lancing he has been a master, organist, and housemaster.

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IN the list of Birthday Honours, among the Knights occurs "John David McClure, Esq.,

M.A., LL.D., Headmaster of Mill Hill School since 1891; joint honorary secretary, Incorporated Association of Headmasters; Professor of Astronomy, Queen's College, London." Dr. McClure resigned the professorship of astronomy at Queen's College nearly twenty years ago, but that is a minor point. All educationists will rejoice at this slight recognition of education in the list; literature, art, drama, music, have all been recognised from time to time, but this is almost if not the first time that a headmaster has received the honour of Knighthood while still in active service. Dr. McClure, as all readers of THE SCHOOL WORLD know, took an active part in the negotiations for the establishment of the Teachers' Council on which he represents the Headmasters' Association. He is at present enjoying six months' leave of absence.

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MR. C. W. BAILEY, headmaster of the Holt Secondary School, Liverpool, is offering some practical suggestions in a book published by the Cambridge University Press under the title "Steps towards Education Reform." Mr. Bailey is an M.A. of Dublin; he was educated at Saltley College, Birmingham; University College, Liverpool; and Trinity College, Dublin. For twelve years he was principal of Sefton Park School, Liverpool, and for six years assistant in method in Liverpool University. His suggestions are therefore based on ripe experience.

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MISS ALICE E. BLAGRAVE is going to resign her appointment as headmistress to the City of London School for Girls at Michaelmas next. She is doing so under medical advice. Miss Blagrove has been headmistress of the school since 1894.

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THE decision in the schoolboy's action for negligence recently decided in the King's Bench Division, before Mr. Justice Horridge and a special jury, will strengthen the position of schoolmasters and governors. A boy, running along a corridor, struck one of the glass panels of a heavy swing door through which another boy had just passed. His hand and wrist were severely cut, and a surgical operation was necessary. He contended that the doors were unsuitable for school premises. The defence was that the injuries were caused by the boy's act in pushing his hand against the glass in an attempt to open the door while running. The jury returned a verdict for the school authorities, and judgment was entered with costs.

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An analysis of the list of Wranglers in the Mathematical Tripos just issued shows that

the Central Foundation School has three representatives; Marlborough, University College School, and Upper Latymer have two representatives each; while among those schools with only one representative are Eton, Westminster, Clifton, Merchant Taylors', Oundle, and Manchester Grammar School. The old public schools, "The Sacred Seven," will have to look to their laurels, at any rate in mathematics.

ONLOOKER.

### NATIONAL NEEDS IN EDUCATION.<sup>1</sup>

It has been announced by three members of the Cabinet that the Government intends to introduce in the present Parliament a National Education Bill, of such a nature as shall secure a comprehensive scheme of national education, suited to the educational needs of the country. It has been further stated that the Government will welcome well-considered suggestions from those whose experience and knowledge entitle them to respond to this invitation.

The British Science Guild has, through its education committees on general and on technical education, given much attention to the question of national education reform. When the intention of the Government was announced, a joint committee was formed to draw up and present to the executive committee of the guild a report which would express the views of the members of the guild, and might in their name be submitted to the Prime Minister, with the view of rendering aid in placing our system of education on a scientific foundation. The subjoined report of this joint committee refers to outstanding points in many parts of the educational field to which attention may usefully be directed.

#### RECOMMENDATIONS.

##### *Provision for the Physiological Well-being of Children Prior to the School Age.*

1.—(a) No system of national education can be regarded as scientifically efficient which does not include the necessary precautions to ensure the physiological well-being of young children before school life begins. To this end, all local authorities should be empowered to organise a system of voluntary service, to care for the proper nutrition and hygienic conditions of those children from two to six years of age whose parents are unable to do so, and the State should make adequate grants for this purpose.

The medical inspection of children entering school life has proved that large numbers of them are not fit to undergo physical and mental exertion suitable to their age, and that many are prone to disease. This throws upon the teachers and the medical inspection staff in elementary

<sup>1</sup> From a report of the British Science Guild adopted at the annual meeting of the guild on May 21st. The members of the joint committee referred to are:—Right Hon. Sir William Mather (chairman), J. Wilson (secretary), Dr. G. T. Beilby, F.R.S., Fred. Charles, Hon. Sir John Cockburn, K.C.M.G., J. Easterbrook, E. Gray, Prof. R. A. Gregory, E. G. A. Holmes, T. C. Horsfall, Sir Alfred Keogh, K.C.B., Prof. A. Liversidge, F.R.S., Sir Philip Magnus, M.P., C. T. Millis, Prof. J. Perry, F.R.S., A. T. Pollard, Sir William Ramsay, K.C.B., F.R.S., Prof. T. Raymont, J. H. Reynolds, Miss C. E. Rigg, J. J. Robinson, A. Shadwell, Mrs. W. N. Shaw, Dr. R. M. Walsley, Sidney Webb, Prof. J. Wertheimer, and Sir James Yoxall, M.P.

schools much work that might be avoided, it causes much medical treatment that ought to be unnecessary, and it entails a heavy cost upon the local authorities in curing evils that might have been prevented. It leads also to a prodigal waste of human energy, of bodily health, of brain power, and of the effort of the teachers.

Compulsion could not be usefully applied by the education authorities, but they might enlist the sympathies and secure the voluntary co-operation of a large number of persons who would devote their time and energies to assist in remedying the evils referred to. The local authorities should prepare and maintain a well-organised scheme which should comprise, for example, the development of nursing schools and schools for mothers, and the extension of the work of voluntary associations for the proper nourishment and care of infants and the instruction of mothers. The limited and voluntary work which has already been done in certain localities along these lines has shown that the present urgent needs might be gradually met, with immense benefit to the nation.

(b) Attendance at school should not be made compulsory for children under six years of age.

#### *Elementary Education.*

2.—(a) There should be an efficient public elementary school (efficient in structure, equipment, and staff) within the reach of the children in every school district, and no local authority or other body should be empowered to grant partial or total exemption from attendance at school to children under fourteen years of age.

At present, the age at which a child under the age of fourteen can obtain exemption from school attendance varies according to local by-laws, and depends either upon previous attendance at school or upon a test of proficiency, or upon a combination of the two.

(b) Viewing education from the scientific point of view, namely, the means to an end as applied to and through the child's physical and intellectual nature in the order of natural development, it is of vital importance that the primary object of education in the early school years should be the physical development of the children, including the training of the senses. The proper training of the bodily powers and the senses is necessary in order to prepare the brain for its intellectual function.

Great prominence should be given throughout the curriculum to manual work and to exercises involving initiative, in order to develop the observing and reasoning faculties of the child, and to serve as a basis from which much of the teaching of other subjects may be developed. For girls, instruction should be given in manual work and exercises suited to their natural proclivities towards housecraft and home life.

The love of freedom of action in every child may be used as a motive power to cause him to rely upon his own efforts, and hence to experience the delight of overcoming difficulties himself, thereby nourishing the desire for future improve-

ment. Such a system develops character, individuality, and self-control; it fosters the habit of concentrated attention through joyous interest in the work of the school. The ordinary class-room subjects would become more interesting and more readily understood, since this method coincides with the natural development of the dawning intellectual powers of the child. The assimilation of knowledge, whatever be the subject studied, would be facilitated by the habits of accurate thinking and doing, acquired, for example, in the manual workshops, where hand, eye, and brain work together. The training for good citizenship and for the development of high moral character would be all the more effective, owing to the higher intelligence of the children.

(c) In the last two years of elementary school life (*i.e.*, from twelve to fourteen years of age), whilst continuing the general education of the children, the curriculum should be correlated with the early instruction given in the continuation schools. It should be of such a character, though not specialised in any way, that it would fit the children in general for any occupation the parents might be able to obtain for them.

The results of a thoroughly efficient training and education in elementary schools should be shown in the disposition of young people on leaving school to pursue knowledge for its own sake by availing themselves of opportunities for further education during the years of adolescence.

#### *Continuation Schools.*

3.—(a) Local education authorities should be required to make provision within their respective areas for the attendance up to seventeen years of age at suitably equipped continuation schools of all young persons above the age of fourteen years who are not otherwise receiving suitable education. In these schools, particular attention should be given to the extension of manual and physical training commenced in the elementary schools, together with instruction having some relation to the occupations of the pupils.

(b) Employers should co-operate with local education authorities with the view of securing the attendance at continuation schools for at least six hours weekly during forty weeks a year of all young persons in their regular employment under seventeen years of age. As a practicable means of ensuring such attendance, it is suggested that the following conditions should be observed:—

(i) It should be illegal to employ any young person under seventeen years of age who is not in regular attendance at continuation classes for at least six hours weekly, unless reasonable cause for absence be assigned.

(ii) In order to avoid undue strain upon young persons in the evenings, after working the usual hours during the day, employers should grant them at least three hours a week out of the ordinary working hours for the purpose of attendance at continuation classes.

It would, however, be most desirable where possible for employers to grant the whole six

hours during the working day. Many young people would undoubtedly add evening hours of attendance, actuated by the desire for self-improvement.

(iii) The education authority should notify employers of any young persons in their employment who are not attending day or evening continuation classes for at least six hours weekly, in order that the employers may take the necessary steps to ensure attendance at such classes.

#### *Secondary Schools.*

4.—(a) In all educational areas, in addition to the customary type of secondary education with a curriculum mainly "literary" or "classical" in character, provision should be made for secondary education of a technical character, with a four years' course for boys and girls between the ages of about twelve and sixteen years. Due regard should be paid in these schools to the continuance of the general education of pupils, and special provision should be made for sound scientific and manual training. The aim of these schools should be to provide preparatory training for pupils who propose afterwards to follow industrial or commercial careers or to manage households intelligently, so that they may be able more quickly and efficiently to master the work they will afterwards follow. Education of this type should, of course, receive financial support from the State equal to that given to secondary education of the ordinary type.

(b) Where the provision is at present inadequate, local education authorities should be urged to establish, or to aid in establishing, an adequate supply of secondary schools of a high educational type preparing for the universities and the professions.

At present more than 90 per cent. of the pupils in our State-aided secondary schools are under sixteen years of age, and one-quarter of the pupils are under twelve years of age. In other words, a large part of the work of these secondary schools is of an elementary grade educationally, and not secondary in the sense of being a continuation of primary education. Of the total number of pupils in secondary schools, 60 per cent. are from public elementary schools, and 35 per cent. receive free education. Nearly three-quarters of the pupils in "Council" secondary schools are from public elementary schools, and 40 per cent. pay no fees.

Any bright boy or girl can proceed from the elementary school to the State-aided secondary school by the liberal provision of "free places," and they can often obtain maintenance grants in addition. There are now very few really promising children of working-class parents who fail to secure places in our State secondary schools if they wish to do so. In some districts it is difficult to find among the pupils presented from elementary schools a sufficient number to justify their admission to secondary schools under the clause which provides for 25 per cent. free places for pupils from elementary schools, without having a low educational standard. In fact, free secondary education practically exists at present

for every capable child of the elementary school class who desires to take advantage of it. The children enter as free-placers or by payment of low fees; but as most of them leave before they are fifteen years of age, they benefit comparatively little from their stay in the secondary school. Free secondary education may be accepted as a general principle, but the privilege should be accompanied by the responsibility of remaining at school until a full course has been completed, whether maintenance grants are provided from public funds or not.

#### *School Certificates.*

5.—(a) A system of school certificates should be established for:—

(i) Children who complete satisfactorily the full course of an elementary school.

(ii) Children who complete satisfactorily the full course of a recognised, approved secondary school.

The certificates should be based not only upon examinations, but also upon reports by the teachers as to the ability of the pupils. In examinations other than those conducted solely by the teacher, the latter should be associated with the external examiner.

(b) Steps should be taken to give a definite value to the courses of instruction given in recognised and approved secondary schools, so that on their satisfactory completion the pupil may be qualified for entrance into any British university or place of higher or specialised instruction, without being required to pass a preliminary or matriculation examination.

The effect of such recognition would be to encourage pupils to remain for the full course of the school, and to improve the status of the secondary school.

It might be made the duty of each university to certify the schools within its own area the courses of which, in respect of length and quality, merit its approval, and therefore to receive from such schools as students of the university without further examination any of their pupils who have satisfactorily completed the full course.

#### *Scientific Method.*

6.—In every school, the instruction should, where possible, be given by practical or experimental methods, whatever may be the specific nature of the subject that is being studied; and to this end not only should there be a proper amount of instruction in the general principles and methods of elementary science, with adequate laboratory and workshop practice, *e.g.*, manual training, but the scientific method of the laboratory and workshop should so far as possible be employed in the ordinary class-room. In this way the school would provide for the more complete intellectual development of the pupils; it would give the best kind of preliminary training for industrial life, and it would also ensure that those who subsequently receive a university education shall bring to the work which will devolve upon them in various fields of activity, including the administration of public departments, an adequate training in scientific method.

*Higher Technological Education.*

7.—The efficient development of higher technological education demands:—

(a) Proper co-ordination upon a national basis, both between the technical institutions themselves and the universities, with the object of discouraging needless overlapping, fostering a higher degree of specialisation in suitably equipped institutions, facilitating the easy interchange of students for special courses, securing recognition for diplomas and degrees and for admission to professional associations, of work done and studies satisfactorily pursued in any one of the recognised institutions.

(b) The encouragement by more liberal State grants of higher technological training and research in all branches of applied science.

(c) The establishment of faculties of technology in universities situated in manufacturing centres, of which the technological institutions with suitable equipment and fully qualified staff should be constituent elements, and with which would be intimately associated the chief representatives of manufacturing industry and the recognised professional institutions.

(d) Facilities should be given to the students of such faculties for obtaining degrees and other recognition of a standing equal to those offered in other faculties.

(e) Encouragement should be given to local education authorities to send, by means of scholarships, their best students to suitably equipped and staffed central institutions, and in this way to discourage ineffectual attempts to give advanced instruction in small and insufficiently equipped and staffed local institutions.

(f) The industrial progress of the nation demands the development of efficient education in applied science. This development must be based on a recognition, not only of the objects to be attained by the training, but also of the different classes of students to whom the training is to be given, and the different types of practical activity to which their lives are to be devoted.

*Extension of University Facilities.*

8.—(a) There should be a wide extension of the existing facilities—not necessarily all involving competitive examinations—whereby students of limited means, but of outstanding ability in any particular subject, should be granted access to the opportunities of high intellectual training and research offered by the universities.

(b) Further encouragement should be given to the development of the system of tutorial classes involving regular attendance for a period of at least three years. Provision should be made for highly qualified students from these classes to proceed as full-time students to the universities, or to attend special university courses in the evenings or in the summer.

(c) Sufficient funds should be placed at the disposal of the universities to establish extensive systems of post-graduate scholarships for research, and to enable low fees to be charged for all courses.

*Position of Teachers.*

9.—In view of the necessity of securing the provision of highly qualified and capable teachers, it is incumbent upon the State and the local authorities to place

teachers in a more satisfactory position from the point of view of emolument, tenure, and superannuation. Local authorities, governing bodies, and parents should realise that the salaries at present paid are in most cases quite inadequate to secure a supply of highly qualified and capable teachers. The opportunities for advancement offered by other careers attract from the teaching profession many men who, by attainment and aptitude, would promote the educational welfare of the nation. The conditions of service, tenure, salaries, and outlook of assistant-teachers, whether engaged in the work of primary, secondary, or technical education, are in general most unsatisfactory, and unless they are improved they must fail to attract or retain the services of many men and women best qualified for the profession of teaching. A high standard in education can only be attained by generous provision for those who do the work, both in their active and declining years. Until this is recognised, it is futile to anticipate progress in procedure or success in any organic educational system, or to obtain from the present efforts and expenditure on education a sufficient return.

*Registration of Schools.*

10.—Since the organisation of education requires a knowledge of the provision of schools in relation to pupils, the primary step in any attempt to improve this organisation must be the completion of the knowledge by a survey of all schools and educational institutions.

*State and Rate Aid.*

11.—The committee would strongly emphasise the justice and the practical necessity for increased national grants for educational purposes to the local authorities. Without such increased grants, no effective progress in the future can be made.

The cost of education publicly provided in the United Kingdom is now about twenty-seven to thirty millions sterling. About one-half is derived from national sources, and one-half of the cost is borne by local authorities, but, in addition, the central authority bears the cost of central administration and of grants to educational institutions of various kinds. The quota of the cost borne by taxes has grown very considerably since 1870.

## REQUIREMENTS FOR REGISTRATION.

THE Teachers' Guild has issued a memorandum sent in February to the Teachers' Registration Council, to the Board of Education, and to other authorities. In it teachers are classified according to the ages of their pupils rather than according to the type of schools, in a way similar to that suggested in a letter to the "Education Supplement" of *The Times* in May. There the writer argued that the terms "elementary" and "secondary," with all they now convey, should be dropped, and that England should make use of the idea already in vogue in America. Schools for children up to the age of, say, twelve should form one class, schools for children



from twelve to sixteen another class, and schools for children from, say, fifteen upwards should form a third.

In the opinion of the Teachers' Guild, the permanent conditions for registration should be evidence of adequate knowledge, evidence of approved training, one year's satisfactory teaching, and a minimum age to be determined later.

As the requirements of teachers vary according to the age of the pupils, the Teachers' Guild suggests that the conditions of registration be adapted to the general requirements for teachers of infants, of juniors, of seniors, and of students in universities or institutions of university standard.

These divisions would correspond approximately to the ages under eight, from seven to thirteen, from twelve to eighteen, and above eighteen.

The qualifications for teachers of infants should be a higher certificate of the National Froebel Union, or an equivalent as accepted by the Teachers' Registration Council or the Board of Education parchment certificate; for teachers of juniors a university degree or the Board of Education parchment certificate, or an equivalent accepted by the Teachers' Registration Council; for teachers of seniors and teachers of university students a university degree or an equivalent accepted by the Teachers' Registration Council.

With regard to existing teachers, the council of the Teachers' Guild is of opinion that all applications for registration should be dealt with on their merits by the Teachers' Registration Council, special regard being paid to the quality of the experience in each case.

### PROGRESS OF THE METRIC SYSTEM.

THE report for 1912 of the Decimal Association, which has now been issued, provides interesting reading for mathematical teachers and others. The association was established to promote the adoption of a decimal system of weights, measures, and coinage in the United Kingdom, but it takes cognisance of improvements effected in other countries. The report shows that the General Medical Council has announced that all measures and weights in the new British Pharmacopœia, including those referring to dosage, will be in the metric system. In consequence of a successful agitation on the part of the jewellers of the United States for the adoption of the metric carat of 200 milligrams, prominent jewellers and gem merchants in London have approached the Deputy Warden of the Standards with a request that the new carat be made compulsory throughout the jewellery trade.

An Ordinance prescribing the adoption of the metric system in Malta was sanctioned in March, 1911. The Governor of the island has power under the Ordinance to fix the date for its coming into operation, and under this power he has ordered it to be introduced on July 1st, 1914.

The late King of Siam was at the date of his death (October, 1910) on the point of

introducing the metric system into that country. The matter was dropped for the time being, but the Minister of Lands and Agriculture revived the subject, and in consequence his Majesty the present King, on November 15th, 1911, ordered the adoption of the metric system throughout the kingdom. In China a Bill for the complete introduction of the metric weights and measures has passed its first reading in the Advisory Council and has been referred to a committee for expert advice. The Government proposed to send delegates to all provinces to arrange tables for the conversion of the old weights and measures into those of the new system. These tables will be made known universally. Then three years after the promulgation of the metric system, it will become necessary for all shops to use weights and measures according to that system, and six years later the Government will prohibit the sale of goods by the old weights and measures.

The British Empire, the United States, and the Russian Empire are the only remaining great communities which have not adopted the metric weights and measures; an indication therefore of the attitude of the Government of any one of these countries towards this reform must have a considerable bearing on the attitude of the other countries. The Russian Minister of Commerce has recently addressed an official letter to the Decimal Association in which it is stated that the Government views with favour the establishment of the metric system in the Russian Empire.

### HISTORY AND CURRENT EVENTS.

THE war in the Near East has decided that Turkey in Europe—with one significant and important exception—is no more. That exception is, of course, the city of Constantinople. In some respects the present position of "New Rome" is similar to that of "Old Rome" in the decade ending with 1870-1. Then Italy, having for centuries been only "a geographical expression" owing to her own dissensions and the power of other States, especially the Habsburgs of Spain and Austria—Italy had achieved her long-desired unity, all but Rome. Without Rome, she lacked completeness. So now the Balkan peninsula, long more or less subject to the Turk, has emancipated itself from the oppressor, all but Constantinople. But without Constantinople, Christian, European "Turkey" lacks its head, and from one point of view, the ultra-Christian, that head is as important, perhaps more important, than all the rest. Was it not *the* Christian city *par excellence*, founded by the first Christian Emperor, to avoid the paganism of Old Rome? When will the Church of the Holy Wisdom be purified from Mohammedanism, and the priest reappear with the eucharist who vanished into its walls in 1453?

THEY say, and to a large extent truly, that the downfall of Turkey in Europe is the long-deferred result of its lack of power to assimilate the populations it subdued, and though careful observers tell us that Moslems have been more tolerant of religious practices different from their own than we have given

them credit for, they have never ceased to be nothing more than an army in occupation. But is Germany any better in this respect? It is now more than forty years since Germans recovered from France the territory lost in the days of the empire's weakness, yet so thoroughly had France won the allegiance of Elsass and Lothringen, so "French" had these provinces become, that even now Germany has failed to re-Germanise the population, and that because, as we learn from both public and private sources, she seems to lack the power of governing the "Reichsland" in a spirit of conciliation. We were lately told by a native of Elsass that the difficulty for them arises from the excess of Government regulations and harassing rules. They are not Germans, and as they cannot be French, they are "Alsations"; their speech is "neither French nor German"; it is "that of Strasburg." So the millennial conflict over the Rhinelands still exists, and East Francia and West Francia still dispute the extent of their common "march."

FRANCE, whether by that term we mean the narrow territories which were all that the early Capetians really ruled, or the greatly enlarged dominion which they began to acquire under Philip Augustus—France has been strangely successful, in spite of endless complications and restrictions in her economic and legal development, in assimilating, or at least reconciling, the provinces of the west (Brittany), the south (Provence), and east (Dauphiny), and when the French Revolution of 1789 suddenly swept away the relics of the old constitution, a nation stood revealed that astonished Europe for twenty years and more. "The Republic, one and indivisible," succeeded not only in beating down the opposition of La Vendée to its anti-Christian propoganda, and that of the south to its centralising policy, but gave the law to a distracted and astonished Europe, not beginning to fail until the folly of her leader ignored the powers of another "nation" (Spain), and warred against the elements in Russia.

THEREFORE we must not suppose it is the monopoly of "Anglo-Saxondom" to assimilate and reconcile foreign elements, though we may fairly congratulate ourselves so far on the success of our American cousins in their treatment of the populations of Eastern Europe which have during the last twenty or thirty years been flocking to their shores. The Brito-Irish Empire can also record some recent successes in this direction. When we read, for example, of the meeting last January of Sir Frederick Lugard with the Emirs of Nigeria at a Durbar at Kano, or of the mission of Mr. Gokhale on behalf of the natives of India who have settled in South Africa, we are persuaded that, if only angry passions are kept at bay, and time is given for reason and conciliation to prevail, the complicated problems of an empire which embraces peoples of every kind and degree of civilisation are not entirely insoluble, even in these days when ease of communication brings these various nations into violent contact. Let us "think imperially" in the best meaning of that phrase, and remember that Great Britain is not the whole of the Empire.

## ITEMS OF INTEREST.

### GENERAL.

THE President of the Board of Education opened the Newcomen Foundation Domestic Trade School for Girls in London on June 5th, and in his address he discussed the education of domestic servants. "I am a great believer," said Mr. Pease, "in what I call practical education. I think when the history of the past fifty years comes to be written it will show that we have been rather too foolish in the kind of education we have given to the people of this country, and also that there has been too great an effort to make individuals read books. The result has been that individuals have often formed their opinions from opinions formed by the writers of books, rather than from the results of their own experience, their own thought, and their own work. Therefore I commend very much an institution of this kind, which combines a practical with a general education." If the experiment to be made in the Newcomen School is successful, said Mr. Pease, the example will be followed by a great number of the leading towns. Such institutions ought to be made as attractive as possible, and encouragement should be given to literature, history, English, and novel reading. The discussion of novels would be a very suitable method of employing part of the time of the girls. There is an impression held by many people that domestic service is a servile sort of trade, and that it would be better for a girl to become a typist, or for her to follow some other occupation. But if girls are trained properly for such a career, the President believes the whole status of the domestic service of the country can be raised very materially. The very fact that girls are properly trained will not only secure for them much higher wages, but a corresponding improvement in the conditions of their service.

It is not generally recognised to what a great extent both Oxford and Cambridge have become central Universities of the Empire as well as of the nation. Oxford has her Rhodes scholars, but Cambridge, even without such adventitious aids, flings her net as wide as Oxford, and draws in the promising students from all parts of the Empire. One fact from the recent Mathematical Tripos List will serve as illustration. St. John's College had eleven candidates for part ii., nine of whom were wranglers. It is interesting to note that among these eleven there were no fewer than seven who went up to Cambridge from other universities or university colleges, namely, one from St. Andrews, one from Durham, one from Bombay, one from the Cape of Good Hope, one from Jamaica, one from a London college, one from Birmingham. In addition to these there was in the same year a graduate of Manchester who elected to take part ii. of the tripos in the preceding year. That is to say, that out of the twelve honours men in mathematics at St. John's College there were eight who hailed from other academic groves, before going up to Cambridge.

At the conference of the Secondary Schools Association, held in Caxton Hall, on May 17th, Sir Philip

Magnus, the chairman, read a paper on the relation of secondary schools to national education, the gist of which was that Mr. Haldane made a mistake when he characterised the secondary schools as the pivot on which education turned. Not only the chairman, but subsequent speakers spoke with no uncertain voice about the claims of the elementary schools to be the first and chief care of any Government. As was natural, Sir Philip pleaded for vocational education, but other speakers pointed out some of the inherent difficulties. It was suggested that the Government had no plans, but was kite-flying to see what the public really wanted. Some of the speeches were frankly utilitarian, and one speaker spoke of much of our education being merely a luxury of the rich. Divergent opinions were expressed on the subject of private schools and of compulsory inspection. A suggestion which it was said is likely to be heard of again in many quarters was, that to lessen the constant friction in the matter of salaries, all salary payments should be taken out of the hands of local authorities. Much dissatisfaction was expressed at the way in which scholarships and free places were awarded, though no very definite proposals were made. All speakers fought shy of the real difficulty, which indeed is rarely mentioned in educational meetings, though it lies at the root of almost all troubles in this country; it is the suspicion of one class and the superiority of the other. We have statesmen enough; what is wanted is a new St. Francis, with the learning that St. Francis hated, to preach and practise human brotherhood. But the saint must know his facts and must distribute his exhortations impartially.

At the meeting of the Montessori Society of the United Kingdom on June 11th, a lecture, entitled "Some Facts about the Montessori System," was delivered by Miss M. M. Simpson (principal of the Kindergarten Experimental School, Teachers' College, Sydney). After giving her impressions of a visit to the Montessori schools in Rome, where "no disorder was ever seen," Miss Simpson described a very interesting and successful Australian Montessori experiment. There they had to make their own material, every bit of which was used up by the children at the end of the first ten days. Reading was begun by children of five years nine months, first with letters, then frames, and so on, according to Montessori principles. At the end of the first fortnight the biggest boy was able to make forty words. Writing was not suggested to the children. In about two or three weeks children asked if they could write. They wrote the phonic sounds on boards in a good hand. One day as the teacher was telling a story to one part of the class some other children covered the board with words like "lamb," "sheep," &c. The effect on the rest of the class was most exciting. The general result of the experiment was that under this system the children advanced more in five months than under ordinary conditions they would do in eight months.

At the joint session of the Mind Association, the Aristotelian Society, and the British Psychological

Society, held on June 7th and 8th, Dr. Arthur Robinson contributed a criticism of M. Bergson's views on memory. According to Dr. Robinson, M. Bergson neglects the fact that memory is an assertion and does not do justice to the function of meaning in remembering. If recollection is to minister to choice it must be possible for the situation while still fluid to be clearly illuminated by consciousness. But in Bergson's theory in proportion as we are more intelligent we are less free. We cannot fall back on intuition, for that is divorced from action. Unconscious memory in which our past exists just as it happened is not necessary to explain the fact that we can think of the past. It is, moreover, difficult to see how the past can exist just as it happened in a universe which is essentially continuous change. If intuition and intelligence are not somehow inclusively related, and if the instrument of philosophy is intuition and the instrument of psychology intelligence, then psychology and philosophy can never reach out hands of help to one another. Dr. H. Wildon Carr, in defending Bergson, said that remembering is no more thinking than perceiving is thinking. At every moment of our active life we are kept by our body in our attitude of attention to life. The act of recollection is the relaxation of that attention, so that the mind may go back, may allow wider and wider zones of the past to come into consciousness, may search in the past for the memory.

THE annual meeting of the Association of Headmistresses was held at the Ladies' College, Cheltenham, on June 13th and 14th. Among the resolutions adopted were the following: "That when a headmistress retires from work she may, on the invitation of the executive committee, remain a member of the association and shall pay an annual subscription of one guinea. She shall not be entitled to vote, but may sit on sub-committees of the executive committee." "That the Association of Headmistresses, while not agreeing with every detail of the confidential scheme of training communicated to it by the Board of Education, and stipulating further that girls' schools be regarded as eligible for participation in the grant proposed to be made by the Board of Education, welcomes the scheme as providing an alternative course of training to that given at training colleges. This association further resolves that the schemes placed before it to-day be sent to the Board of Education as alternatives, each of which is advanced by certain groups of headmistresses, members of the association." Reports were adopted which dealt with the registration of teachers, the superannuation of teachers in State-aided schools, and the employment of girls and women. Mrs. Bryant spoke on the place of vocational training in education. Miss Robertson, Christ's Hospital, Hertford, was elected president for the period 1913 to 1915.

THE summer meeting of the Association of Assistant-mistresses was held at Wycombe Abbey School on June 7th. The president, Miss I. M. Drummond, North London Collegiate School, was in the chair. Since the January meeting, the information sub-

committee has collected statistics from typical schools represented in the association with regard to the length of school holidays. These have been tabulated under three heads: (1) county and municipal; (2) endowed; (3) proprietary. In the first group the average length of holidays has been found to be 12.1 weeks, in the second 13.3 weeks, and in the third 14.1 weeks. A paper on some of the suggestions contained in the report of the Consultative Committee on Examinations in Secondary Schools was read by Miss Laurie, Ladies' College, Cheltenham, who approved of the suggestion to limit the external examinations taken in secondary schools to two, the first to be confined to pupils of an average age of sixteen, who have not been less than three years in one or more efficient schools. The standard of this examination would be about that of the matriculation for universities. On passing this, a certificate, known as the secondary-school certificate, would be awarded. The second examination would be taken at the age of eighteen, a more specialised curriculum being permitted; the certificate given would be called the secondary-school higher certificate. No formal resolutions were put at the conclusion of the paper, but it was generally agreed that: (i) It is desirable to limit the public examinations taken in secondary schools to two, one to be taken at the age of sixteen, and the other at the age of eighteen; (ii) there should be no special examining board established, but the universities should continue to examine; (iii) teachers should co-operate with the examining bodies, either by themselves acting as examiners, or by sitting on the revising board.

THE annual general meeting of the Association of Education Committees in England and Wales was held at Westminster early last month. Among the numerous resolutions adopted, the following may be mentioned:—(i) That this association considers it imperative that a revision of the incidence of the cost of education as between the national and the local contributions should precede any further legislation or administrative action which would increase the cost of education. (ii) That a new form of State contribution should be substituted for the present very unsatisfactory system of grants to local education authorities, and that the State contribution should increase automatically, as new and increased responsibilities are put upon local education authorities, and that it be referred to the executive committee to consider the form such State contributions should take. (iii) That the time has arrived when the strongest possible protest should be offered by the local education authorities to undertake any further financial obligations until the Government has redeemed its long promise of further financial aid. (iv) That this association, while welcoming the introduction into Parliament of Bills dealing with mentally defective persons, instructs the executive committee to make such representations to the Government as it may consider desirable in the interests of local education authorities, especially with the view of securing more exact information as to the extent of the new obligations to be imposed upon them and adequate financial aid towards carrying out those obligations. (v) (a) That this association, having

reviewed the report of the Departmental Committee on Playgrounds of Public Elementary Schools, strongly urges that the Board of Education, when framing any new requirements in regard to school playgrounds, will give special consideration to their effect in the case of existing schools with the view of preventing any undue increase of capital expenditure on the part of local education authorities. (b) That in the opinion of this association the use of a playground in common by girls and infants is not undesirable under suitable arrangements for supervision—at any rate in existing schools.

THE Duty and Discipline Movement held its first general annual meeting on June 16th. Its members are enlisted against the insidious foe the menace of which is summed up in the word "slackness," especially slackness encouraged by indiscipline among boys and girls. Associated with the movement are about 2,500 members, and more than 100 vice-presidents, in the list of which occur an unusually large number of eminent names. Four quarterly provisional advisory meetings have been held, and a number of special departmental committees concerned with propaganda of various kinds. The association is active, particularly in the publication of attractive literature by able writers, and in seeking the co-operation of the Press in bringing it to the notice of the outside world. The promoters are anxious to get into touch with all virile associations of young people, such as the Scout and Girl Guide movements, brigades, clubs, and schools. The object of the movement is to counteract the lack of adequate moral training and discipline, the effects of which are apparent among many British children, in rich as well as in poor homes. Miss Isabel D. Marris, the honorary secretary of the movement, will be glad to answer all inquiries addressed to her at "The Duty and Discipline Movement," 117, Victoria Street, London, S.W.

THE new buildings at Cherwell Hall, Oxford, were opened on June 12th by the President of the Board of Education. A new wing has just been completed, consisting of a large library, lecture-room, and study bedrooms. The library is panelled in oak, and contains a silver medallion of the principal, presented by the students. The lecture-hall is arranged, for the purpose of giving demonstration lessons, with a gallery for students and floor space for a class of pupils and teacher.

At the tenth International Congress of Women, held early in June in Paris, under the presidency of Lady Aberdeen, two reports, one dealing with the lot of women teachers and the other with the pay and education of women workers, were adopted. The former report is of interest in that it demands that all the higher branches of teaching should be thrown open to women, and thus aims at the formation of a mixed body of teachers, which would be the first stage towards the joint education of the sexes. The report also urges that the salaries of women teachers should be equal to those of men.

THE second general meeting of the Association of Science Teachers was held in Birmingham, on May

31st, at King Edward's High School, when Dr. Mabel Slater read an interesting paper on some recent developments in radio-activity and their bearing on general scientific views. The programme for the day included a visit to the University, which was much appreciated by the members present.

THIS year the University of Leeds has undertaken the organisation of a Summer School for Geography at Whitby. As Yorkshire has nearly a complete geological succession of formations from Archean (Ingleton) to the Chalk (East Riding), and with a Glacial "mask" that covers the true face of much of the county, the students will have the advantage of practical observation of "the bedrock" of the geographical scheme under the guidance of Prof. Kendall. The variety of surface configuration—mountain and valley, hill and dale, moor and plain, a river system from fountain head or tarn to a tidal estuary—and the physiography of river and tidal action from a long, varied coast-line of eroded cliffs, will be studied under Mr. Rodwell Jones. Dr. W. Smith (Edinburgh) will lecture on the influence of contour configuration and soil on the distribution of vegetation and on agricultural conditions. In connection with this part of the programme arrangements have been made, specially for the benefit of teachers in rural districts, for a series of visits to a typical farm at which sets of maps showing the cropping and conditions of each field for four years will be given to each student; and for practical exercises in elementary surveying by simple apparatus devised by the University staff. A series of meteorological demonstrations will be given by Mr. Gilligan, not only with barometer, thermometer, and anemometer, but with simple adaptations that might easily be made in the school workshop. Historical and architectural geography will be entrusted to Mr. P. W. Dodd, and industrial geography and methods of teaching geography are to be dealt with by Mr. Welpton.

THE complete regulations for the Cambridge Local Examinations in 1914, which were circulated on June 1st, direct attention to several changes which will then be introduced. The syllabuses in arithmetic, mathematics, and drawing have been revised. Mechanical drawing has been introduced as a subject for seniors and juniors, and memory drawing as a subject for preliminary candidates. The regulations relating to the selected books in spoken French and German have been modified. In 1914, too, the Cambridge Syndicate will begin the award of school certificates of two grades to candidates who are presented for examination from schools accepted for this purpose. To be accepted, a school must be inspected by the syndicate or by the Board of Education, or by some other inspecting body under conditions approved by the syndicate. A junior school certificate will be awarded to any candidate who has attended one or more accepted schools for at least two years continuously up to the time of the examination, and has passed the Junior Local Examination, or an examination of the same standard, under certain conditions. A senior school certificate will be awarded to any candidate who has attended accepted schools for at least three years continuously up to the time of the examination, and has

passed the Senior Local Examination, or an examination of the same standard, under certain conditions. Full particulars can be obtained from Mr. J. H. Flather, Syndicate Buildings, Cambridge.

THE recently published report of the Home Office Committee on Industrial and Reformatory Schools gives some instructive statistics. There are in England and Wales thirty-seven reformatories, 112 industrial schools, nine short-term industrial schools, and twelve day industrial schools. In the reformatory and industrial schools there are more than 15,000 children and young persons. In the short-term industrial schools there are about 850 children. In the day industrial schools the average attendance is nearly 2,000. Accordingly, these schools contain a population of nearly 18,000 children and young persons. The schools, it is stated, are doing a work of great national importance. Of the boys and girls who pass through them the great majority become, so far as the Committee's inquiries enabled it to ascertain, self-respecting and self-supporting citizens, and there is no doubt that the training in these schools saves a large number of children and young persons from becoming wastrels or criminals. The recommendations involve a considerable increase in the work and responsibility of the central authority. The proposal is therefore made that a special branch of the Home Office should be constituted, the members of which should devote their attention wholly to the work of the schools, the organisation and supervision of after-care, and kindred questions, such as children's courts and the probation of young delinquents. The branch, it is recommended, should be assisted by an advisory committee of persons interested in education, representatives of managers, and other social workers.

As an outcome of the French lectures inaugurated by the London and South-Western Railway, the first of a series of educational holiday tours to Normandy and Brittany, personally conducted by the lecturer, Prof. Bisson, will be on July 4th, to Normandy. The charges are: for week-end £2 10s., or for fortnight £6 6s., including hotel accommodation, rail and steamer fares, and all meals (except luncheon): For booklet of itineraries apply to Prof. Bisson, 8, Seely Road, Tooting, S.W.

MESSRS. LONGMANS, GREEN AND CO. have sent us an eight-page pamphlet of descriptive notes, by G. Dent, for teachers' use with the series of wall pictures of British mammals noticed in last month's issue of THE SCHOOL WORLD. Though short, the notes will give appreciable help in directing attention to the more important facts illustrated by the pictures.

THE June catalogue of publishers' remainders and other books on sale at greatly reduced prices by Mr. Henry J. Glaisher, 55-57, Wigmore Street, London, W., may be commended to the notice of teachers. Many volumes which might well be added to school libraries are to be procured at much below the original prices. It is an opportunity which should not be lost.

"THE unexpected little paragraph referring to the summer course at Rättvik, Sweden," writes Mr. C. S. Fearenside, "which surprised my eyes in the June number of THE SCHOOL WORLD, might perhaps

be supplemented in one or two points. Besides Mr. A. Johnson Evans, another well-known English schoolman has promised to take part in the course, viz., Mr. L. T. J. Jones, modern language master at Whitgift School, Croydon. Perhaps, too, one may add that Rättvik is one of the prettiest and most frequented holiday resorts in Sweden, where the natives still wear their national costumes and where the open-air dancing in the long, light nights of summer is a thing to experience. English teachers who want to try new lands but fear language difficulties will be welcome at the English boarding-house, where the course is held."

THE second annual meeting of the Village Children's Historical Play Society was held at 59, Palace Court, London, W., on June 17th. The object of the society is to promote the acting of little historical plays by village children. The chief promoters are Miss Amice Macdonell, whose own plays are indeed the very *raison d'être* of the society, and Miss Beatrice Beddington, the honorary secretary, under whose direction at Winchelsea the earlier performances were carried out. The plays have been performed in twenty-one English counties, including Oxford, Lincolnshire, Norfolk, Kent, Surrey, Suffolk, Yorkshire, and last but not least, in Warwickshire, the home of English drama, as well as in Scotland, Ireland, and Wales. Miss Macdonell's plays are well known to readers of THE SCHOOL WORLD, but there must be many villages still where the advantages held out by the society would be appreciated by energetic school managers. Much has been done of late to brighten village life, and drama of any kind is invariably attractive. Drama in which their own children take part would appeal to fathers and mothers, even when the plays are of the comparatively serious class represented by the society. Each play has its own set of costumes, which are supplied to associates at a charge of 18s. 6d. for one week. Those who know how the most economical management is apt to run into much larger figures will appreciate the moderation of such a charge, which works out at less than 1s. a head, for most of the plays are planned for at least twenty characters. A satisfactory balance-sheet proves that the society has met a real need. Annual subscriptions of 2s. 6d., payable to Miss Beatrice Beddington, The White Cottage, Winchelsea, entitle to the privileges of associates, which include advice by experts as to the best way of organising the performance.

A GREEK Play Company has been formed to present translated Greek plays by a trained body of actors. "The continuous speaking of verse, both in dialogue and lyrics, the singular combination of a stiff classic form with extreme sincerity of thought and emotion, above all, the technical difficulties of the chorus, present problems quite different from those of the modern or the Shakespearean stage. It is hoped, by forming a company . . . who have taken special interest in these problems, by laying little stress on expensive setting or minute archæology . . . and concentrating on the beauty and sincerity of the actual drama, gradually to build up a more satisfactory method, both for Greek plays and other poetic work." So

runs the prospectus. Miss Penelope Wheeler, an actress of reputation, brought together a company for these objects, and with them performed last winter the "Iphigenia in Tauris," and the "Hippolytus" of Euripides in the translation of Prof. Gilbert Murray, who gave his personal help during rehearsals. Miss Wheeler is preparing to make an extended tour next autumn, and is endeavouring to interest schools and schoolmasters, as well as playgoers generally, in her scheme. It is clear that the majority of school pupils will never be able to read Greek in the original. All the more reason, therefore, that they should avail themselves of the possibility of acquiring some second-hand knowledge of the finest literature in the world.

OPEN-AIR schools prove beneficial to debilitated school children. The report of the school medical officer to the Education Committee (L.C.C.) may be obtained from Messrs. P. S. King and Son (2½d., post free). Particulars are given for the two open-air schools, Birley House and Shooter's Hill, where there were ninety-three and eighty-three children respectively.

THE West Riding Education Committee has included in its vacation course at Bingley Training College a laboratory course of experimental science, under the direction of Prof. Arthur Smithells, F.R.S., of Leeds University, who will be assisted by Mr. Harold Calam, of Leeds University. The course is intended for science teachers in secondary schools, and especially for those who teach girls, and desire to make themselves acquainted with methods of correlating elementary science with domestic subjects. The course will relate chiefly to the subject of combustion, and will (i) discuss questions connected with the teaching of elementary physical science, with special reference to experimental work; (ii) provide examples of the teaching of science in relationship to the phenomena and appliances of daily life, especially domestic life; (iii) give an account of modern views of combustion and the chemistry of flame. The course is open to all teachers.

HOLIDAY classes for teachers of young children, under the supervision of Mrs. Kirk, are to be held from August 2nd to August 9th at the Froebelian School, Duckworth Lane, Bradford, Yorks. Particular attention will be directed to handwork and the Montessori method, the telling of stories, morris dances and folk-songs, and to games. Full particulars can be obtained from Mrs. Kirk at the school.

#### SCOTTISH.

THE annual meeting of the School Board Association was held this year in Aberdeen, and was attended by representatives from all parts of the country. The delegates were welcomed by Lord Provost Maitland on behalf of the corporation, and by Mr. John Keir, chairman of Aberdeen School Board, on behalf of the board. The Rev. Dr. Smith, in his presidential address, said that at present there were three Bills before Parliament with reference to the care and welfare of school children. These were the Mental Deficiency Bill, the Employment of Children Bill, and the Medical Treatment Bill. These Bills clearly showed that the official conception of the school

boards' sphere of work was constantly undergoing enlargement, and was now practically coincident with the oversight of the whole moral, physical, and mental welfare of the young. While this from many points of view was a gratifying evidence of the confidence placed in the local administrators of the school system, it entailed a grave increase of their financial responsibility, and he was not at all sure that the Government was prepared to bear anything like its fair share of the increased expenditure.

THE School Board Association has had under consideration for some time the question of the establishment of an education council to act as an advisory and consultative body to the Secretary for Scotland and the permanent Secretary for Education. The executive brought forward at the Aberdeen meeting the following recommendations for the constitution of such a body, and these were unanimously approved by the association:—(1) The council should be set up by Statute, and should preserve the independence and responsibility of the Minister of Education to Parliament; (2) the council should be representative of all educational interests—the Scotch Education Department, the universities and central institutions, school boards, and teachers; (3) all proposed legislation and all codes, minutes, and circulars should be submitted before being issued, and the council should have power to initiate discussion on any matters affecting education in Scotland; (5) statutory meetings should be held four times a year in Edinburgh, and should be presided over by the Secretary for Scotland or by the permanent Secretary of the Education Department.

THE annual Congress on Secondary Education was held this year in Dundee. The congress is promoted by the Secondary Association, with which are associated for this purpose nearly all the other associations interested in one or other of the subjects of the secondary-school curriculum. By some it is fondly hoped that the co-operation which has worked so admirably for one purpose may foreshadow the unity of Scottish education in all its branches, and the amalgamation of all sectional bodies in one great national association for all educational purposes. It is a noble dream, but much water will have to flow under the bridge before the classical lamb will trust himself to go into the same fold with the modern language wolf. At the opening meeting, when all the sections met together, an address was delivered by Prof. Burnet, St. Andrews University, on the task of the secondary school. Prof. Burnet said that though the foundation of universities and the endowment of research were excellent things in themselves, they could not be made to yield an adequate return until the secondary schools were properly equipped. By "the equipment of secondary schools" he said he meant mainly men and women, and not buildings and apparatus. In Scotland for some years past the best men turned aside from the teaching profession. Of twenty-four honours men in classics in St. Andrews University during the past thirteen years only one had gone in for teaching in a secondary school, and the case was not much better with the second class honours men.

Of the thirty-one men who took second class honours only four were regular teachers in secondary schools. Considering the position and prospects of secondary-school teachers in this country these men did well in their own interests to look elsewhere for their life work, but thereby the educational well-being of the nation was seriously imperilled.

EDUCATION occupied a prominent place in the deliberations of the three general assemblies, the Established Church, the United Free, and the Free. The discussion in each case centred round the question of higher education in rural schools, and in each strong and emphatic testimony was borne to the disadvantages and hardships under which children of poor parents labour in the outlying parishes of the country. Central secondary schools, which have done so much for the urban areas, have only intensified the hard lot of the dwellers in the Highlands and isles, and have closed up for many the only avenue that in the past led their fellows to fame and fortune. It is difficult to see how Parliament can remain indifferent to the accumulated evidence of grave educational injustice to an important section of the community. It is useless in face of the facts that were brought forward for the Department to make broad its phylacteries, and call upon the world to witness the beauty and symmetry of its handiwork. It is intolerable that the Department should, as in this case, be both the accused and the judge. What is really wanted is a formal inquiry by a Royal Commission into the whole facts of the case, and the proceedings in the general assemblies enormously strengthen the case for this demand.

RECENTLY the Education Committee of the Episcopal Church in Scotland resolved to recommend to Convocation that its training college in Edinburgh should be discontinued owing to the difficulty in securing an adequate supply of students. The Education Department had refused to allow it to train students from England where it could have obtained an abundant supply, and the number of episcopal schools in Scotland did not justify the expense of running a special training college to meet their needs. The Representative Church Council, which may be said to be the equivalent of the Convocation of the English Church, after a lively debate, refused to accept the recommendations of the education committee, and resolved to carry on the training college for another year at least. Everyone who knows the excellent work that has been done by Dr. Leslie, principal of the training college, will welcome the decision arrived at.

THE St. Andrews Society, which was founded in the interests of Scottish language, history, and literature, has issued an appeal to school boards to encourage the study of the national vernacular literature. It points out that at the present moment Scotland is threatened with the practical loss, so far as popular knowledge is concerned, of almost the whole of its national literature—a loss which would prove of incalculable harm to the spirit of nationality. Following up this appeal, the society has now approached the Education Department, urging it to stipulate that in all schools the Scottish vernacular literature shall

furnish a fair part of the reading lessons. With the first appeal we have every sympathy, though the matter really rests in the last instance with the people as a whole. But one cannot congratulate the society on its latest move, which is really one to concuss teachers and school boards into adopting its proposals. St. Andrews Society might at least have had the grace to wait to see the outcome of its appeal to school boards before approaching the central authority. Although no reply from the Department has yet been made public, everyone knows, or should know, what it will be—a few words in appreciation of the efforts of the society, and an intimation that the matter is one for the local authorities. That was the reply received by the influential deputation that some years ago sought to obtain the Department's help in encouraging the study of Gaelic in schools in the Highlands and isles.

#### IRISH.

THE £40,000 grant is still the one topic of discussion in relation to intermediate education in Ireland. So far as official information goes, there is no more news about it than two months ago. Mr. Birrell has vouchsafed no further statement than that which he has repeated several times to the effect that he has nearly completed the arrangements for the scheme, and that he hopes to have it complete shortly. Meanwhile public opinion is clearly becoming impatient of the delay. It is well on in the second year since the claims of intermediate education to increased grants were fully admitted, and the delay in making this small grant of £40,000 is arousing much criticism. If it takes so long to formulate the general conditions, what will happen when the details of a registration scheme, which is to form one feature of it, come to be discussed? Irish education requires to be dealt with in a more businesslike spirit. When many reforms are necessary, the leisurely progress made in dealing with this £40,000 grant seems to indicate a feeble grasp of the position and requirements of intermediate education in Ireland. There is, however, a Bill before Parliament introducing one reform in intermediate education which may eventually have far-reaching results. It proposes to give the Intermediate Board power to make grants on the results of inspection to pupils in schools between thirteen and fifteen years of age, who used formerly to be examined in the preparatory grade. This may entail, on one hand, more thorough inspection of such pupils than at present, and lead, on the other, to a further substitution of inspection for examination as the basis of grants in the other grades.

A BLUE-BOOK has been issued containing the first portion of the minutes taken by the Viceregal Commission on Primary Education, presided over by Sir Samuel Dill. This Commission is taking its evidence in private. Two of the chief grievances complained of by teachers are the delay in increments of salary and unfairness of dismissals. The former seems to be caused by the action of the Treasury, which will not recognise more than 500 teachers in the first grade, so that, no matter how many are properly qualified for promotion and the increased emoluments accompanying it, no teacher can be promoted unless there

is a vacancy. This has been going on for more than twelve years, the Treasury refusing to agree to the suggestions of the National Board. In connection with dismissals, interest has chiefly centred round the Mansfield case, which arose from the severity of an inspector who was criticised by name. The number of "excellent" and "very good" reports under this inspector fell in one district from 137 to 70, showing a difference in standard adopted by different inspectors. The inspector who reduced the number was complained of by Mr. Mansfield, who was eventually dismissed for it. The Commission, which is still sitting, ought to lead to valuable results.

THE twelfth annual congress of the Irish Technical Instruction Association was this year held at Bangor in co. Down. The chairman was Mr. F. C. Forth, principal of the Belfast Technical Institute. He pointed out that the Department had effected during the past year one very important reform. For fifty years examinations had been held for students attending evening classes in science and art by the Board of Education in London, but these had latterly come to be completely out of touch with the requirements of Ireland. The Department had now established a scheme of examination in science, commerce, and art under its own auspices, and on lines suitable to Ireland. A paper was read by Mr. A. F. Sharman-Crauford, vice-chairman of the Cork County Borough Technical Instruction Committee, urging more co-operation between the county and the urban district technical authorities. He pointed out that the technical schools in the larger towns and boroughs are the natural centres of instruction for large surrounding districts, and without these schools the county authorities would be compelled to spend considerable sums to provide for students outside the town and borough areas, and therefore some arrangement should be made for increased co-operation between urban and county committees and for contributions from the counties to the towns where the counties benefit by the town technical organisations.

THE Central Association of Irish Schoolmistresses held its annual meeting on May 30th, at Alexandra College, Dublin, Miss Cunningham in the chair. A paper was read by Miss White, the president of the association, on women in the past.

THE work of the department for training in education at Alexandra College is being further developed. The council of Alexandra College has recently taken a house and fitted it to provide residence for the students following these courses of instruction. The training department falls into two divisions. First, the secondary-school training department (in connection with the Trinity College department for the training of teachers). The course prepares for the teachers' diploma of the University of Dublin and other British universities; only students possessing a degree are eligible for this department. There is a loan fund and several scholarships are offered. Secondly, the department for training junior school teachers and private governesses, a course which does not demand the qualification of a degree. Arrangements are being made to admit students at the lowest



possible fee that will cover working expenses. Full information may be had on application to the lady principal, Alexandra College, Dublin.

#### WELSH.

PERHAPS there is no part of the kingdom where it is so urgent as in Wales to get financial aid from the Treasury if the educational system is to be satisfactory. It is useless for Welsh speakers to express rhetorical national self-glory whilst the elementary schools and school teachers are supported so sparingly as at present. For orators are never tired apparently of speaking of the democratic aspect of the Welsh educational system, telling us that more than 80 per cent. of the children in the intermediate county schools come from the elementary schools, forgetting that the value of this statement certainly depends on the condition of things in those schools from which so large a percentage of their best pupils receive their earliest education. Mr. Rhys Nicholas, a member of the executive committee of the National Union, has recently stated with regard to teachers in the elementary schools "that the starvation stage is more nearly approximated in the four central counties in Wales than anywhere else—Merionethshire, Cardiganshire, Montgomeryshire, and Radnor being the most benighted areas in the whole of the education field in England and Wales." The salary of £80 a year for head-teacher, he stated, was quite common in Merionethshire—"a wage which would be contemptuously declined by a South Wales collier." In the four counties above named there are 360 schools and 30,000 scholars, whilst, as Mr. Nicholas states, half the headmasterships and all the certificated masterships carry a salary of less than £100 a year. Finally, Mr. Nicholas suggested: "It is to the Treasury we must look for means to remove these hardships from teachers, and in addition to provide a special State subsidy for the small school."

At a meeting of the governors of a county secondary school, one of the members has made his protest against two languages being learned during the first year, on the ground that some boys are "duffers" at languages. Why, then, are such boys in the secondary schools? This gentleman has given notice of motion to apply to the Board of Education to allow the headmaster to "put a lad who had no aptitude for languages to other subjects." But once more—does it not occur to those entrusted with the management of secondary schools to inquire whether boys unfit for proceeding to higher studies should be encouraged to remain in the school?

At Newport, in Monmouthshire, the question of Welsh has been again discussed in the education committee. The present state of things is that parents by a majority have favoured the teaching of Welsh, and in response the education committee decided that it should be placed in the curriculum, and half an hour a week be devoted to it. A sub-committee has now recommended that Welsh be dropped. It was pointed out that for a difficult language like Welsh really efficient instruction would need at least four hours. Before the question had been taken up the teachers had requested that instead of adding a new

subject the curriculum *should be reduced*. It was contended that Welsh should be taught because a majority of parents favoured its inclusion. But when the question of religious education was being discussed it was denied that the wishes of the parents should count. Two sensible points were made in the discussion. First, why not let those boys whose parents wish them to do so, learn Welsh, and learn it efficiently, with due time in the curriculum? Secondly, let the committee be prepared to show which parts of the curriculum should be left out, for the purpose of the inclusion of Welsh.

At a meeting of the governors of Builth County School, the finance committee has reported that the actual expenditure has exceeded the income by more than £100. It was stated that if the governors had not had a balance to fall back upon the school would be like many other schools in the Principality, deeply in debt, or on the road to it. The lessening income and increasing demands made in developing secondary-school education were reported as providing the governors with a very serious problem, and the forecast was made that "unless something turned up shortly" the schools would be in a state of bankruptcy.

WALES is remarkable for the many cases of lifelong continuance of scholars at Sunday schools. In connection with a chapel at Ferndale, South Wales, a Sunday school class of fourteen of the oldest lady members reaches a total of 1001, with an average of more than sixty years of age. Amongst them are ladies of ages as follows: Eighty-three, eighty-two, eighty-one, seventy-nine, seventy-five, sixty-nine, sixty-five.

WALES is very fortunate in the interest felt in her by her sons who have left her and gone elsewhere. No one of these is more keenly concerned for her welfare than Sir Henry Jones, of the University of Glasgow, who has lately been at a speech-day gathering at Dolgelly Grammar School. Sir Henry raised the question: Is Wales going in the right direction? He gave the warning: "Misuse mind, misuse character, starve your schools, as some of you are nearly doing in Wales, and your ruin is certain. Do not be too niggardly with your schools. Dr. Ellis, the founder of Dolgelly Grammar School, left £40 a year to endow it. Do you know any other £40 a year that has done anything like so much good as that?"

#### THE PUBLIC SCHOOLS AND THE EMPIRE.

*The Public Schools and the Empire.* By Dr. H. B. Gray. (London: Williams and Norgate.) 6s. net.

APART from its many intrinsic merits, Dr. Gray's recently published volume would naturally attract considerable attention, on account of the closeness of its bearing upon one of the pressing questions of the hour. Not that it is written *ad hoc*, as a manifesto meant to be taken note of by persons in high places at the moment. Indeed, the author tells us that he is as ignorant of the purport of forthcoming measures as any other "man in the street," and that most of the book was written before the speech of Lord Haldane was delivered in January last. All the more seriously,

in our opinion, should the criticism and the recommendations contained in this important book be weighed, by all who are interested in the development of a truly national system of education in this country.

The main theme of the book is that our system of education is bound up with our imperial destiny, a proposition which, in the author's view, must be carried to its logical consequences by our educational statesmen. The writer accepts *pro tanto* Milton's ideal of a "just and generous education" as "that which fits a man to perform justly, skilfully, and magnanimously all the offices, both public and private, of peace and war," but he adds significantly that the process of the ages had not revealed to Milton the responsibilities involved in the possession of a world-wide empire. And the particular and confessed aim of the book is the investigation of the problem "how far the curricula set, and the life led, at our great schools, are fitting their *alumni* to become useful and profitable partners in maintaining the integrity of the Empire."

Anyone unacquainted with Dr. Gray's career would probably be disposed, before troubling to peruse his book, to inquire into his qualifications for undertaking this investigation. Upon this point the most exacting inquirer would speedily be satisfied. Educated at Winchester and at Oxford, Dr. Gray became an assistant-master at Westminster School, then headmaster of Louth Grammar School, and then warden and headmaster of Bradfield. At Bradfield he remained for thirty years, and it was his work there which has made him well known in the scholastic world. He was a member of the Moseley Educational Commission to the United States; and the year before leaving Bradfield he occupied the presidential chair in the Educational Section of the British Association. In later years he has figured in British Columbia as secretary to the Royal Commission on Taxation, and as writer of the Budget speech. This long and varied experience enables Dr. Gray to speak with peculiar authority on the subject to which he has here set his hand. One feels in reading the book that, whether or not one agrees with its conclusions, the writer has made the subject his own. We may add that the book gains in value by the crispness and lucidity of the writer's style.

He lays it down at the outset that our capacity for empire is not innate, but needs cultivation, and that the typical public-school product, though it may serve passing well for the government of subject races, is out of its element in countries like Canada and Australia, where that social status which is really the distinguishing mark of our so-called "public" schools is taken little account of. He holds that the curriculum of the public school has not that vital and stimulating character which is necessary for the education of the ruling classes of the modern British Empire. Later in the book the author gives a full and interesting analysis of the reasons why the classical curriculum has so long retained its hold; and he describes the educational condition of the public schools during the last fifty years, showing, amongst other things, why the "modern side" has been so qualified a success. He goes on to compare the boarding with the day school, quoting the Bishop of Hereford's avowal that of his own pupils "those had, on the whole, the best education who grew up as day boys in good homes," and declaring for himself that as things stand he has "come to believe the day school to be, on the whole, the more salutary system of education." Then, after dealing with the universities in their relation to the secondary schools, and in particular with "the curses of scholarship-hunting," he devotes his concluding pages to fundamental principles, and their application to the educational problems of the

present. Here, as elsewhere, he has some candid things to say about "the grand old fortifying classical curriculum."

But how are reforms to be carried out? Dr. Gray boldly avers—and here his proposals will give pause to many of his readers who otherwise agree with him—that he sees "no other or better means of escape from the existing educational order or chaos than some form of State control. It is practically impossible to get any august institution, with ancient vested interests, to reform itself from within, and least of all the ancient universities. The universities must be compelled to admit students without any necessary qualification in either of the two dead languages, nor must they be allowed to regard any educational subject which fosters national progress as common or unclean." Similarly he would put the public schools under external control, and he would sever that organic connection between the public schools and the ancient universities which perpetuates the manifold evils of scholarship competition.

We have tried to give our readers some idea of the unambiguous message of this timely volume. It is a message which will undoubtedly provoke many a sharp retort in some quarters. For our own part we believe that in the main Dr. Gray is as faithful and wise a counsellor as Matthew Arnold was in his day, and that, generally speaking, and without committing ourselves to details, the more the warnings of this book pass unheeded, the less will be the influence of the public-school product in the building up of the British Empire of the twentieth century.

#### THE OXFORD GEOGRAPHIES.

(1) *An Introduction to Plant Geography.* By M. E. Hardy. 192 pp. (Oxford: The Clarendon Press.) 2s. 6d.

(2) *A Commercial Geography of the World.* By O. J. R. Howarth. 236 pp. (Oxford: The Clarendon Press.) 2s. 6d.

(3) *An Elementary Geography of Scotland.* By M. I. Newbigin. 135 pp. (Oxford: The Clarendon Press.) 1s. 6d.

DR. MARCEL HARDY has laid teachers of geography under an obligation by the publication of this book (1); they would have been proportionately more grateful if he had added by way of a summary a glossarial explanation of the new terms which are beginning to find their way into school use. For example, the terms *puna* and *taiga* are discussed at some length, but it would be useful to have a clear, concise statement of the precise value to be given to these terms. Many of the pictorial illustrations are useful, but we fear that many readers will be unable to gain many ideas from the pictures of the sage brush in north Colorado and of the alpine rock and cushion plants.

Mr. Howarth's book (2) is interestingly written, and surveys the distribution over the world of the main commercial products. On the whole the book is a useful supplement to the distribution maps which are to be found in such an atlas as the Economic Atlas issued from the same press. There are occasional references to the relative importance of the various areas in relation to the special products, but the quantitative work which only can supplement these general notions is not complete. Mr. Howarth eschews tabular numerical statements except in an appendix of four tables, and it appears that he loses in clearness, e.g., the discussion of the fluctuations in wheat supplies to the United Kingdom is not quite clear in meaning even to one who has some knowledge of the facts. Some of the illustrations are very useful, especially those which show wheat and rice cultivation in relation to density of population.

Miss Newbigin's book (3) will be useful to Scottish teachers. It begins with an account of the position of Edinburgh and of the trade of Edinburgh and Glasgow in relation to the occupations of the people. The two chapters which are devoted to this description make up roughly one-fifth of the book. The space which has been devoted to the account of the geographical factors which have caused the rise of Edinburgh is in striking contrast to the space which a schoolboy is allowed in an examination answer in regard to a similar explanation; as a rule he is asked to discuss the situation of four or five towns in the time available for the answer of only one question. It must be granted that Miss Newbigin uses Edinburgh as an introduction to many matters of general importance, and that the account of Edinburgh alone would be shorter when stripped of this interesting and useful other matter, but even the smartest schoolboy would find difficulty in giving much of the explanation in this book in the space at his disposal.

### RECENT SCHOOL BOOKS AND APPARATUS.

#### Modern Languages.

- (1) *L'Auberge Rouge*. By H. de Balzac.
- (2) *Les Aventures du Dernier Abencérage*. By Chateaubriand.
- (3) *La Jeune Sibérienne*. By Xavier de Maistre.
- (4) *Le Coup de Pistolet, L'Enlèvement de la Redoute, Mateo Falcone*. By Prosper Mérimée.
- (5) *Le Serf*. By Emile Souvestre.
- (6) *Laurette ou le Cachet Rouge*. By Alfred de Vigny. (Dent.) 3d. each.
- (7) *Jeux Français*. By Lilian G. Ping. (Dent.)
- (8) *Lectures Dictées*. By L. Bascan. (Dent.)

Read books and avoid criticisms of them—at least until the books are finished—is a good piece of advice to the student. There is no difficulty in doing this, now that typical works of six authors can be bought for eighteenpence, and a knowledge of French literature and history for some centuries be obtained.

(1) Do you want to read a tale from Balzac (1799-1850), and see how—with all his lack of common sense—Balzac abounds in imagination? Here is "L'Auberge Rouge," a scene from 1799, characteristic of the Reubens-like character-drawer.

(2) A sixteenth-century legend retold by that *poseur*, François René de Chateaubriand (1768-1848), propagator of romanticism, illustrates its author, who concludes several of the chapters of his "mémoires d'outre-tombe": "Et si j'étais mort à ce moment-là; s'il n'y avait pas eu de Chateaubriand? Quel changement dans le monde!"

(3) As a masterpiece of natural simplicity we have Xavier de Maistre's (1763-1853) "Prascovie." In contrast to this follow (4) Mérimée's (1803-1879) three tales, written in the concise style of the author, the least humanitarian of men. (6) The horrors of the Revolution, suggested by "Laurette," de Vigny (1797-1863—"le seul penseur de tous les romantiques"—are well-nigh excused by the cruelties of the nobles, described in "Le Serf" (5) by Souvestre (1806-1854).

An excellent eighteenpennyworth indeed! The books are well printed and edited; in the six we have noticed only a couple of slips in the printing. They are, perhaps, on the whole suited for older readers.

(7) Children would read "Les Jeux Français" probably with more pleasure. We should prefer to see parts of these plays acted, rather than the some-

times overrated home-made ones. The language is quite modern.

(8) To remind us that language teaching must be thorough, come "Les Lectures Dictées." Purists may object to the comparative table of sounds on p. 7, but when we find the provincial "grôs" given for "gro:s" as the sound of "grosse" by some phoneticians, we remember that even purists are not infallible. Those who work through this book cannot fail to improve their French.

#### Classics.

*A New Latin Grammar, based on the Recommendations of the Joint Committee on Grammatical Terminology.* By Prof. E. A. Sonnenschein. 266 pp. (Clarendon Press.) 2s. 6d.—This grammar, unpretending though it is, may be said to be an advance on existing grammars in some respects. Perhaps one of them is that it embodies the recommendations of the Committee on Terminology; we say perhaps because we do not regard that committee as having settled the question of terms, but only to have done a little to simplify them. Anyhow, so far it has claims on teachers. But it has a greater claim in omitting much that has a place in most grammars, but is quite useless to the learner until he has reached an advanced stage: rarities and exceptions. It is, in fact, an encouraging book for the learner in that he has much less to learn. In many places his work is also lightened; thus the distinction of the declensions is simple and neat (p. 19), although some may think that a more radical rearrangement would be better still. Then the past participle passive is given as a principal part, instead of the supine, a distinct improvement. But chief of all is the classification of the perfect stems (p. 80 ff.), whereby for the first time the principal parts are reduced to some principle. A table of principal parts gives the whole alphabetically without distinguishing the conjugation. The syntax is noteworthy chiefly for the treatment of the subjunctive, which follows the author's pamphlet on that subject. Whatever may be thought of the origin of the mood, the author's principle is very helpful in classifying the Latin uses. Some useful rules for word order are given, but we scarcely think the author has used his opportunity here; for instance, he might have done good service by examining the phrasing of the Latin sentence, so as to show that each phrase as uttered must give enough of the meaning to convey a thought and also to lead up to what follows. There is a small slip on p. 19; Latin is not the only language which has an ablative case; Sanskrit at least might have been mentioned.

*The Year's Work in Classical Studies, 1912.* Edited by L. Whibley. xvi+200 pp. (Murray.) 2s. 6d. net.—This little summary is now indispensable to the scholar (but a great many persons who profess to be such manage to do without it). We may suggest that next year the prices of books be mentioned; a very useful thing to the possible buyer. This year gives us nothing sensational, but we may mention a few items of interest. A bilingual text in Lydian and Aramaic gives us the first clue to the meaning of Lydian inscriptions: would that next year might give one from Crete! Proof is now forthcoming that Pheidias did not finish the pediments of the Parthenon himself, perhaps did no more than design them, which only adds to the wonders of that nation of artists. Juno appears to have been originally the female counterpart of the genius. The contributions sometimes seem to contradict each other, as in the estimates of Cornford on religion and philosophy (pp. 63, 161, the former not in the index). We are glad to see a paper on comparative philology, after many years.

*Perse Latin Plays.* By W. H. S. Jones and R. B. Appleton. 67 pp. (Heffer.) 1s.—This is a collection of some eight Latin plays for "improving the teaching of Latin in the lower and middle forms of schools by making the Latin lessons more interesting to the boys." They are intended primarily for those who employ the oral method of teaching Latin, but may also be used by others. There is unfortunately a tendency in plays of this kind to write down too much to the level of the inferior schoolboy, and several of those in this book are quite common and banal in tone. This is unnecessary, as it is quite easy to have elevated subjects and style without ceasing to be interesting. The book has three faults. There is no table of contents. Quantities are not marked, a wrong departure (unless an oversight) for the oral method. Thirdly, the first twenty-six pages are an apology for the new method and out of place in a book of this kind. Much of this preface is occupied with the answers of two schoolboys to questions about the efficacy of the oral teaching. However interesting in itself, their evidence can scarcely be held conclusive one way or the other.

#### English.

*A Book of Ballads for Boys and Girls.* Selected by J. L. Smith and G. Soutar. 109 pp. (Clarendon Press.) 1s. 4d.—So much importance is rightly attached to the ballad that we welcome any collection by responsible editors, and the editors of this volume are well known. A too brief introduction is written for the teacher; it is much too learned for the schoolboy. Kitteredge and Grundtvig and Gummere and the immortal Child are all great names in ballad criticism and collection; but though the editors know them and their works, the vexed questions remain vexing: Is the ballad popular or learned in origin? Is it a relic of a dance? How is it that all Continental countries have the ballad in forms like ours? What is the meaning of the easy phrase "free-trade in balladry?" The editors object to communal authorship, but while cautious in this, they commit themselves to two statements which surely are "previous." One is that Child's unwritten preface would have settled the question of ballad origins, and the second is that the ballad withered in Shakespeare's day.

Many of the best ballads are included, but no good modern imitations or translations are given. Lenore and Longfellow's "Mother's Ghost" and some of Grundtvig's Danish ballads and Keith of Ravelston are a few which might have been added. There is at least one modern ballad on which any critic might be defied to pronounce, so full is it of the ballad spirit, so precise in the ballad requisites. "The Nut-Brown Maid" is included by the editors; is it a ballad? Even "The Lament of the Border Widow" has doubtful claims. We wish someone would tell us more about the "Lyke-Wake Dirge."

*A Short History of English Literature.* By George Saintsbury. 803 pp. In five parts. (Macmillan.) 2s. each part.—This book—the great 8s. 6d. book well known to us—is now, after seven reprintings, divided up into parts, for the convenience, we presume, of the student of parts of literature and for the convenience of the (financial) pocket. It is much too late in the day to praise, and it is impertinent to criticise our arch-critic's work; but we may say of it what Mr. Saintsbury rather strangely says of the Faerie Queene: we could wish it had been longer. For though at a first glance everything seems to have been touched upon, as a matter of fact some important things have been omitted or touched so slightly that omission were preferable. The ballad poetry of England, the Volkslied, is dismissed in a few, we

dare not say how few, lines; Reynard the Fox, which, though not originally English, took hold on England, is not mentioned; and the famous Seven Champions of Christendom, on which so many literary people were nurtured, is as if it never had been. These omissions may be defended; but assuredly they point to the undoubted fact that, while we have many histories of English literature, we have as yet no history of the literature of the English people. We should like an explanation of the motto of the book, "But it needs happy moments for this skill." We honestly do not agree with the interpretation which another critic, Prof. Gummere, would put on it; but what did Prof. Saintsbury mean by choosing this line from the "Scholar Gipsy" to adorn his five title-pages? Every volume has a useful index.

*Elizabethan Lyrists.* By Amy Cruse. 147 pp. *Horace and his Poetry.* By J. B. Chapman. 141 pp. (The Poetry and Life Series.) (Harrap.) 10d. each.—This series is by now well known; but these books are special. Surely it is something new to have a Latin author so vividly explained (life and writings *pari passu*) as Horace is by Mr. Chapman. How illuminating it would be to have an Aristophanes treated thus or a Victor Hugo. Rarely has the principle of the series been seen to better effect. The first twenty pages of Miss Cruse's book are not the best. We do not know what produced the Elizabethan literature; there have been great ages in the world without singers, as Horace reminds us. Nor is it of much use to force the principle of the series; a pure lyricist may be anybody and his life anything. Miss Cruse's instances (except that of Sir Philip Sidney) seem to fail her; but the remarks on the singing of the age and the quotations given are admirable. Six pieces (one, a discovery of Mr. Bullen's, being singularly beautiful) are anonymous; what are they doing in this gallery?

*Highroads of Literature.* In three books. From 150-200 pp. each. (Nelson.) Part i., 10d.; part ii., 1s.; part iii., 1s. 3d.—These bear the date 1913, though we think we have seen them (or perhaps their illustrations) before. The books are beautiful, well arranged, and, considering their price, of a really noble look and character. They are profusely pictured, and are accompanied by suggestive lessons which the child reader will ignore. Book iii. particularly is an admirable introduction to the end of the Middle Ages; but to assign fifty pages to Chaucer and one and a half to Langland is a grievous error considering how full of vivid pictures is the Vision.

#### History.

*The Industrial History of the American People.* By J. R. H. Moore. xiii+406 pp. (New York: The Macmillan Company.) 5s. 6d. net.—We found the early part of this book most readable. The author describes under headings derived from the various sources of wealth, fish, lumber, fur, corn, the gradual development of the United States in commerce and industry, and throws much light on these subjects, as well as on the political questions, internal and international, to which they give rise. Much of the information is new to us, and we should be grateful if it were not that we have failed to feel much confidence in him, but his references to European history are very strange, and his characterisation of George I. of Great Britain in particular is untrue to what is now known about him. Still, we can well believe that the head of a history department in an Indiana manual training high school may be well versed in his national history without having a clear idea of the past politics of what he seems to regard as the more benighted part of the world. The later part of the

book, as he says himself in the preface, is more difficult reading, and we wonder if the youngsters who will be pleased at the simplicity of the early history will be able to understand the fiscal and monetary problems discussed in the later story, or, on the other hand, if those who can understand the latter will not be bored by the easy style of the earlier parts. But for those of us who are interested in United States history (and who, in these days of change there, ought not to be interested?) this book will be a valuable introduction to the subject. There are some good pictures, with short, useful comments thereupon, and an index.

*History of Our Time.* By G. P. Gooch. 256 pp. (Williams and Norgate.) 15. net.—A rapid survey in ten chapters of events in Europe and the world as viewed from Europe since 1885. The book improves as it goes on, but at first we found it difficult to think it could be of service to those who did not already know. What, e.g., could be made of this sentence, which has practically no context (p. 23): "In 1904 a scarcely less controversial measure gave licence-holders a statutory right to compensation levies on the trade if the licence was not renewed"? What trade? the ignorant reader might well ask. And what (on the same page) are the "orthodoxies of Dublin and Belfast" as to land questions? Some of the chapters begin abruptly as if they were but extracts from a larger book. But the teacher will find here an excellent summary of events which we are all supposed to know, because they happened in our lifetime, but which we forget.

#### Geography.

*The Statesman's Year Book, 1913.* Edited by Dr. J. Scott Keltie, assisted by Dr. M. Epstein. 1452 pp. (Macmillan.) 10s. 6d. net.—The 1913 edition of "The Statesman's Year Book" is of particular interest, as it forms the jubilee volume of this most useful annual. Fifty years ago the year book was founded by the late Frederick Martin; since its foundation each successive edition has been made more accurate and more comprehensive, until it has become absolutely indispensable to all those who require trustworthy information in a compact form. In the present volume the editors have directed special attention to the past fifty years (1) by giving a retrospect of important events which have taken place in the chief countries of the world during that period, and (2) by including a series of maps of the great land masses—two maps for each continent, one for 1863, the other for 1913. These maps show in a striking way what great changes have taken place in a short space of time. In 1863 the railways of North America had only extended westwards to the Mississippi—trans-continental railways were at that date unknown. In the case of Africa and Australia respectively, the 1863 maps show an undeveloped interior, while the 1913 maps show the great advance which has taken place in those regions. One important addition has been made to the section dealing with Canada; in former editions a general description only was given, but in the present volume a separate notice of each province has been added to the general description.

*The Excelsior Map of the Mediterranean Lands.* (Bacon).—This relief map of the Mediterranean lands is so much wider than the usual wall-map that the printing is done on four sheets which are later joined and mounted. The result, so far as regards the specimen sent to us, is not happy. The more distant members of a class to whom the map was exhibited failed to detect a uniformity of tint in several cases where uniformity of coloration was intended, and some pupils confused the colours on that

account. The stippling which is used to indicate infertility of soil is of little value for work with a largish class. Many Roman names have been included, but they appear to be insufficient from the point of view of the teacher of history.

#### Mathematics.

*Algebra for Beginners.* xi+272 pp. *Elementary Algebra.* Vol. ii. xi+258+xlvi pp. By C. Godfrey and A. W. Siddons. (Cambridge University Press.) Each 2s. 6d.—Although bearing different titles these two volumes are parts of the same work, and the authors consider that they cover as much of the subject as is likely to be learnt by a pupil of average ability during a full school course. A very cursory examination reveals considerable deviations from the usual beaten track. Although in connection with graphs some of the ideas of the calculus have been finding their way into the newer algebras, we think that this is the first elementary algebra to contain chapters on differentiation and integration. The inclusion of these subjects has necessitated the sacrifice of some topics which are usually discussed, and so one looks in vain for permutations and combinations, while the binomial theorem is merely represented by a chapter entitled "Approximation for  $(1+x)^n$ ." An estimate of the value of this book must be made from the pedagogical rather than from the mathematical point of view; indeed, criticism from the latter point of view is rather disarmed by the authors' statement that no attempt has been made to establish the laws of algebra on a strictly scientific basis; they are suggested by a rough induction from familiar arithmetical truths. It is reasonable to demand, however, that even if there is some lack of vigour, the subject shall be presented in such a way that nothing need be unlearned at a later stage, and in this respect we find the works perfectly satisfactory. Roughly speaking, the first volume is designed to show the power of algebraic symbolism in the solution of problems, while the second is an introduction to the idea of functionality. The appearance of these books is a welcome symptom of the wider outlook of modern school mathematics, and their influence cannot fail to be entirely good.

*Pitman's Home Arithmetic.* By K. Ross. v+54 pp. (Pitman.) 6d.—The sub-title of this book, which is "Exercises in Shopping and General Domestic Expenditure for Little Housewives," indicates its scope and character. The arithmetic is of the simple form involved in buying and selling. The separate chapters give thoroughly practical information on all the matters of daily life in which money, weighing, and measuring are concerned, and it seems to us that if every girl, and, for that matter, every boy too, were made to master the contents many blunders would be avoided when the independent start in life is made.

#### Science and Technology.

*Simplex Atomic Models.* Designed by E. G. Lester. (Philip Harris.) 2s. 6d. net the set.—Mr. Lester has made a creditable attempt to apply the space models of the organic chemist to the simpler but still pressing needs of the schoolboy. The box supplied contains a number of cardboard discs on which are printed the names, symbols, atomic weights, and valencies of the common metals and non-metals. Simple wire clips attach these discs to one another, so that any desired formula can be constructed rapidly. It is obviously possible to illustrate variable valency by this system, so that from the sulphur disc, for instance, one can build up the graphic formula for hydrogen sulphide, sulphur dioxide, and sulphuric acid merely by bringing into operation more valency units. The models thus

really supply a long-felt want in the elementary teaching of inorganic chemistry. Not only can plane representations be constructed, but by bending the wire links steric formulæ can be produced, and it would be quite feasible to use these discs for the illustration of quite elaborate molecular structures. By means of the blank discs which are provided further atomic complexes or radicles can be brought into play, so that chemical equations can be set up actually in a tangible and visualised fashion.

There is no doubt these models will lighten the labours of the teacher who is endeavouring to get firm notions of valency into his class. Chemical theory is really so abstract and elusive that nothing but praise can be given to an attempt to make it a little more concrete and real. Whilst the models are clearly intended for individual use by the pupils, there is none the less a need for something of the same sort for demonstration purposes, and if Mr. Lester could provide a larger and more substantial set for the lecture-room he would put teachers of chemistry under a double obligation.

*Senior Volumetric Analysis.* By H. W. Bausor. 59 pp. (Clive.) 1s. 6d.—Mr. Bausor has endeavoured in this little book to provide boys in the upper forms of schools with a short introductory course in volumetric analysis, up to the standard of the Cambridge Senior Local examination. From the point of view of the examinee the book is excellent. There is nothing redundant and little omitted that such a candidate would be likely to want. At the same time, it is questionable whether any good purpose is served by compiling such a series of excerpts from standard text-books of quantitative analysis, since one can scarcely imagine a case where a boy would require instructions in just one branch of the subject. The objection to such methods of preparation is the idea conveyed to the pupil that chemistry is a series of separated subjects.

*A Text-book of Experimental Metallurgy and Assaying.* By A. R. Gower. 163 pp. (Chapman and Hall.) 3s. 6d. net.—This excellent little manual has been rearranged and enlarged in order more effectually to cope with the new regulations for the lower examination in metallurgy conducted by the Board of Education. Whilst it undoubtedly covers the ground for such a purpose, yet it is to be hoped that it will have a wider and more useful scope as a good first year text-book for the general metallurgical student. The author wisely emphasises the intimate connection between pure chemistry and metallurgy, and his explanations of the chemical changes which ensue are generally clear and accurate, but exception may be taken to the use of atoms in place of molecules in equations and to the expression of alloys as definite chemical compounds, such as  $\text{Cu}_6\text{Zn}$ ,  $\text{CuZn}_3$ ,  $\text{SnPb}_6$ , &c. The practical and manipulative sections are treated fully, and the student who works through the various assays and determinations will have laid the foundations of a good metallurgical training.

#### Pedagogy.

*The Montessori System of Education—Didactic Apparatus.*—In her exposition of her system of education Dottorressa Montessori attaches great importance to the didactic material and apparatus. Messrs. Philip and Tacey, Ltd., of Norwich Street, London, E.C., have exclusive rights in the United Kingdom for its manufacture. In an illustrated pamphlet issued by this firm an interesting account is given of the apparatus and of its use. All aspects of sense education are considered fully in the making of the didactic material. In the sense of touch, for example, the set

of apparatus provides: (a) a rectangular wooden board, one half with smooth surface and the other half covered with sand-paper; (b) a similar wooden board with alternative strips of sand-paper and plain smooth surface; (c) a polished wooden cabinet of seven drawers containing pieces of different fabrics in duplicate—silk, calico, linen, cloth, serge, velvet—by means of which the child learns by feeling the difference in texture, and quality—e.g., coarse, fine, soft, rough, smooth, thick, thin, &c.—of the various materials. Other aspects of sense education represented are hearing; visual perception of: (1) dimensions, (2) thickness, (3) length, (4) size, (5) form, (6) abstract outline, (7) colour; design as an introduction to writing; visual and tactile perception of alphabetical signs; composition of words; numeration and arithmetic, and habits of order and tidiness. The whole set makes a most efficient means for psychological development, if used by teachers who understand, and believe in, the Montessori system. The complete set costs £8 8s. net, and the various component parts can only be obtained separately in replacement of portions of a set damaged or lost.

#### Miscellaneous.

THE sixth dozen volumes which Messrs. T. C. and E. C. Jack have added to "The People's Books" appeal to a great variety of readers. Teachers of English will welcome Mr. Waterlow's *Shelley* and Miss Flora Masson's *Charles Lamb*. In pure and applied science there are *The Science of Light*, by Dr. P. Phillips; *British Birds (including Nests and Eggs)*, by Mr. F. B. Kirkman; and *Gardening*, by Mr. A. C. Bartlett. The volume *Youth and Sex* deserves the attention of parents and teachers, for the authors, Dr. Mary Scharlieb and Mr. F. A. Sibby, write helpfully, out of a large experience, on dangers and safeguards for girls and boys. The remaining half-dozen volumes deal with social and ethical subjects, many of which form topics for debate in school societies; written as they are by authors of distinction, these volumes deserve a place in the school library. It will be remembered that the books in this attractive series are bound in cloth, and cost only 6d. net each. The results of modern knowledge are here brought within the reach of the man in the street, and the series should do a great deal towards giving us an educated democracy.

### EDUCATIONAL BOOKS PUBLISHED DURING MAY, 1913.

(Compiled from information provided by the Publishers.)

#### Modern Languages.

"A Third Dutch Reader and Writer." (Parallel Grammar Series.) By Prof. J. Endendijk. 120 pp. (Allen.) 2s.

"Aus Bismarck's Familienbriefen." (Little German Classics.) Edited by Alfred Oswald. 62 pp. (Blackie.) 6d.

"Cours de Français, d'après les Textes." By M. Anceau and E. Magee. 124 pp. (Blackie.) 1s. 6d.

Gallaud, "L'Histoire des Deux Frères du Barbier et autres Contes tirés des 'Mille et une Nuits.'" (Oxford Junior French Series.) Adapted and Edited by F. W. M. Draper. 96 pp. (Clarendon Press.) 1s.

"Elementarbuch der deutschen Sprache." By A. Werner-Spanhoofd. 302 pp. (Harrap.) 2s. 6d.

"Table of German Nouns." By F. E. Hastings and M. L. Perrin. (Harrap.) 4d.

"Fünzig kleine deutsche Briefe." By Louise J. Weisgerber. 80 pp. (Harrap.) 9d.

Florian's French Grammatical Readers—Series A :

"L'Homme à l'Oreille Cassée." By Edmond About. Series B: "Contes Choisis." 176 pp. each. (Rivington.) 1s. 6d. each.

Massard's Series of French Readers (according to the New or Direct Method)—Senior Series. No Vocabularies. "Colomba." By Prosper Mérimée. 280 pp. (Rivington.) 2s.

### Classics.

"Rhesus" of Euripides. Translated by Prof. Gilbert Murray. 90 pp. (Allen.) Paper, 1s. net; cloth, 2s. net.

Gaius Julius Cæsar. Book I. "De Bello Gallico." By E. S. Shuckburgh. xxxii+152 pp. (Cambridge University Press.) 1s. 6d.

"Lingua Latina." Edited by W. H. D. Rouse and S. O. Andrew. "Præceptor." A Master's Book. By S. O. Andrew. 104 pp. (Clarendon Press.) 2s. 6d. net.

"Sermo Latinus: A Short Guide to Latin Prose Composition." Complete. By J. P. Postgate. 196 pp. 3s. 6d. Part i., 68 pp. 1s. 6d. Part ii., 128 pp. 2s. 6d. (Macmillan.)

### English: Grammar, Composition, Literature.

"The Vision of Piers the Plowman." Translated into modern prose with an introduction by Kate M. Warren. (Edward Arnold.) 2s. 6d.

"Black's Sentinel Readers." Edited by E. E. Speight. 184 pp. (Black.) 1s. 4d.

Fielding, "Journal of a Voyage to Lisbon." (English Literature for Schools Series.) By J. H. Lobban. xvi+116 pp. (Cambridge University Press.) 1s. 4d.

Sheridan, "The Rivals." Edited, with Introduction and Notes, by T. Balston. 122 pp. (Clarendon Press.) 2s.

"A Book of Ballads for Boys and Girls." Selected by J. C. Smith and G. Soutar. 200 pp. (Clarendon Press.) 1s. 4d.

Longfellow, "Hiawatha." (Oxford Plain Texts.) (Clarendon Press.) Paper covers, 6d.; cloth, 8d.

"Poems of Action." Selected by V. H. Collins. 160 pp. (Clarendon Press.) 1s. 6d.

"Tennyson and his Poetry." By R. Brimley Johnston. 160 pp. (Harrap.) 10d.

"Longfellow and his Poetry." By Oliphant Smeaton. 160 pp. (Harrap.) 10d.

"Horace and his Poetry." (Quotations in Latin.) By G. B. Chapman. 160 pp. (Harrap.) 10d.

"Wonders of London." By Edith L. Elias. 128 pp. (Harrap.) 6d.

"Stories from George Eliot." (Told Through the Ages Series.) Selected by Amy Cruse. 256 pp. (Harrap.) 1s. 6d.

Shakespeare, "Richard II." (Pocket Series of English Classics.) Edited by J. H. Moffatt. 392 pp. (Macmillan.) 1s. net.

The Children's Classics—Intermediate II., No. 44: "The Little Duke." (Abridged.) By C. M. Yonge. 80 pp. (Macmillan.) Sewed, 3½d.; cloth, 4½d.

The Children's Shakespeare—Scenes from the Plays. With Introductory Readings and Illustrations. "Julius Cæsar." 96 pp. (Macmillan.) Sewed, 4d.; cloth, 5d.

The Tudor Shakespeare—"Titus Andronicus." Edited by E. E. Stoll. 148 pp. "Pericles." Edited by C. A. Smith. 144 pp. (Macmillan.) 1s. net each.

"Four Winds Farm, The House that Grew, by Mrs. Molesworth, and The White Rat and other Stories, by Lady Barker." 196 pp. 1s. "Little Wanderlin, Little Silver Ear, The Magic Valley, by A. and E. Keary, and Poems of Childhood." 144 pp. 9d. "Fairy Tales from France, The Dwarf's Spectacles, by Max Nordau, and Tales for Children, by

Frances Browne." 148 pp. 9d. "Fables from Æsop and Nursery Rhymes." 68 pp. 6d. (The Children's Story Books.) (Macmillan.)

Lytton, "The Last of the Barons." (Oxford Editions of Standard Authors.) 672 pp. (Oxford University Press.) 1s. 6d. net.

### History.

"The Trafalgar Roll." By Col. R. H. Mackenzie. 352 pp. (Allen.) 5s. net.

"English History Illustrated from Original Sources." Each volume consists of carefully selected extracts from contemporary authors bearing on the events of the period dealt with, and is illustrated from contemporary portraits and prints. 1715-1815 (Division 1715-63; 1763-1815). By H. E. M. Icely. 208 pp. (Black.) 2s.

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"Greek and Roman Myths." By A. E. Sims and M. L. Harry. 128 pp. (Harrap.) 8d.

"Problems and Exercises in British History." Part vi., Four Stuart Kings, 1603-1688. By J. S. Lindsey. 70 pp. (Heffer.) 2s. net.

"A Junior British History." By R. L. Givern and F. W. Bewsher. (Rivington.)

"The Story of England: A History for Junior Forms." By W. S. Robinson. In four parts. Part iv., 1760 to 1910. 320 pp. (Rivington.)

### Geography.

"Cumberland and Westmorland Churches." (County Churches Series.) By Rev. J. C. Cox. 204 pp. (Allen.) 2s. 6d. net.

"Bacon's Contour Map of the Near and Middle East." Scale 1:6,000,000, or about 95 miles to an inch. 40 in. wide by 30 in. deep. On cloth, rollers, and varnished, or cut-to-fold, on cloth in sections. 7s. 6d., with or without names.

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"Bacon's Contour County Hand Maps." 10 in. by 7½ in. 1d. net each. Special quotation for quantities of 500 or more (assorted).

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Cambridge County Geographies—"Lincolnshire." By E. Mansel Symptom. viii+194 pp. (Cambridge University Press.) 1s. 6d.

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"Atlas Notes." By J. C. Chute. 82 pp. (Clarendon Press.) 1s.

"An Elementary Geography of Scotland." (The Oxford Geographies.) By M. I. Newbigin. 136 pp. (Clarendon Press.) 1s. 6d.

"Senior Geography of North America." By G. C. Fry. 52 pp. (Clive.) 1s.

"Senior Geography of Asia." By G. C. Fry. 42 pp. (Clive.) 1s.

"Regional Geography of the British Isles." 61 pp. (McDougall.) Limp cloth, 6d.

### Mathematics.

"Easy Practical Mathematics." Books I. and II. By E. Sankey. (Edward Arnold.) 6d. net each.

"Systematic Arithmetics." Books I.-V. By R. Fewkes. (Edward Arnold.) Books I. and II., paper,

3d.; cloth 4d.; Books III., IV., and V., paper, 4d.; cloth 5d.

"Four-Figure Tables." By C. Godfrey and A. W. Siddons. 40 pp. (Cambridge University Press.) 9d. net.

"The Principles of Projective Geometry Applied to the Straight Line and Conic." By J. L. S. Hatton. x+366. (Cambridge University Press.) 10s. 6d. net.

"Elementaries, Verbals, and Drawings for Marine Engineers, being Part ii. of Griffin's New Guide to the Board of Trade Examinations for First and Second Class Engineers." By R. A. Macmillan. viii+323 pp. (Griffin.) 8s. 6d. net.

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"Mathematical Physics." Vol i., Electricity and Magnetism. By C. W. C. Barlow. 320 pp. (Clive.) 4s. 6d.

"Senior Volumetric Analysis." By H. W. Bausor. 68 pp. (Clive.) 1s. 6d.

"Electricity in Mining." By Siemens Brothers Dynamo Works, Ltd. xiv+201 pp. (Griffin.) 10s. 6d. net.

"The Earth, its Genesis and Evolution considered in the Light of the Most Recent Scientific Research." By A. T. Swaine. xviii+277 pp. (Griffin.) 7s. 6d. net.

"Laboratory Methods in Agricultural Bacteriology." By F. Löhnis. Translated by William Stevenson and J. Hunter Smith. xi+136 pp. (Griffin.) 4s. 6d. net.

"Manual of Qualitative Analysis: Reagent and Combustion Methods." By Wilbur F. Hoyt. 42 pp. (Macmillan.) 1s. 3d. net.

### Pedagogy.

"Vives on Education: A Translation of the De Tradendis Disciplinis of Juan Luis Vives, together with an Introduction." By J. Foster Watson. xvi+328 pp. (Cambridge University Press.) 5s. net.

"Primary Artisan Education." By W. P. Welpton. (Longmans.) 3s. 6d. net.

"Moral Instruction: its Theory and Practice." By F. J. Gould. (Published under the auspices of the Moral Education League, London.) (Longmans.) 2s. 6d.

"Physical Exercises and Song Games for the Little Ones." Words by L. M. Sidnell, music by Mabel L. Turner. 47 pp. (McDougall.) Cloth boards, 2s. 6d. net.

"The Posture of School Children." By Jessie H. Bancroft. 344 pp. (Macmillan.) 6s. 6d. net.

### Miscellaneous.

"Light Woodwork: A Course of Handwork Correlated with Practical Arithmetic, Drawing, and Composition." By W. G. Alderton and J. T. Baily. (Edward Arnold.) 2s. 6d. net.

Cambridge Bible for Schools and Colleges—"The Book of the Prophet Jeremiah, together with The Lamentations in the Revised Version, with Introduction and Notes." By Dr. A. W. Sheane. liv+382 pp. (Cambridge University Press.) 3s. net.

"Examination Papers for Scholarships and Exhibi-

tions in the Colleges of the University of Cambridge, December, 1912-March, 1913." LXVII., Mathematics. iv+92 pp. 1s. 6d. LXVIII., Classics, Theology, Modern Languages, Law, and History. iv+176 pp. 2s. LXIX., Natural Sciences. iv+80 pp. 1s. 6d. (Cambridge University Press.)

"Animal Tales." (Retold from La Fontaine's Fables.) Retold by Madge A. Bigham. 128 pp. (Harrap.) 6d.

"The Reapers: A Unison Song." By T. F. Dunhill. 4 pp. (The Year Book Press.) 2d.

"The Changeling and The Golden Goose: Two Fairy Plays." By M. E. Wilkinson. 40 pp. (The Year Book Press.) 6d. net.

"The Red Cross Knight: Scenes from Spenser's Faerie Queene." By W. Scott Durrant. 40 pp. (The Year Book Press.) 1s. net.

"The Girls' School Year Book (Public Schools)." Eighth Year, 1913. 600 pp. (The Year Book Press.) 3s. 6d. net.

### CORRESPONDENCE.

*The Editors do not hold themselves responsible for the opinions expressed in letters which appear in these columns. As a rule, a letter criticising any article or review printed in THE SCHOOL WORLD will be submitted to the contributor before publication, so that the criticism and reply may appear together.*

### Correlation of History and Geography with Manual Work.

MR. W. C. C. COOKE'S letter in the May issue of THE SCHOOL WORLD suggests that some account of our attempts to correlate history and geography with the manual work may prove interesting.

During the last three years our aim has been to arrange that in the three lower forms, part of the manual work each year should bear some relation to the work done in history and geography. This historical and geographical handwork has taken various forms, but perhaps the most successful has been the construction of wooden models of typical buildings. Of these we have at present two different feudal castles, three monasteries (one in cardboard), and a Roman house. These have all been the joint work of groups of six to eight boys, except the Roman house, which was made by the combined efforts of the whole of the second form (average age eleven to twelve). Besides these large models, we have an endless array of smaller ones, each the work of individual boys—Roman and mediæval war-engines, illustrating the principles of torsion, tension, and counterpoise, as applied to the hurling of heavy missiles; battering-rams; siege-towers; a Viking ship; primitive spindles, looms, and ploughs; Greek and Roman shields, helmets, spears, swords, and costumes (in connection with historical plays written for, and acted by, the boys). For future models we have more ambitious plans. We hope, for instance, to make models of the Athenian Acropolis, the Parthenon, a Greek theatre, a Greek trireme, Olympia, the Roman Forum, the Colosseum, the Circus Maximus, a Roman aqueduct, and an Egyptian temple, and even perhaps Solomon's temple.

Besides the wooden models, we have built up a complete set of Messrs. Teubner and Co.'s cardboard models, both historical and geographical, which can be obtained without difficulty from the Educational Supply Association, with instructions which are more or less in English.



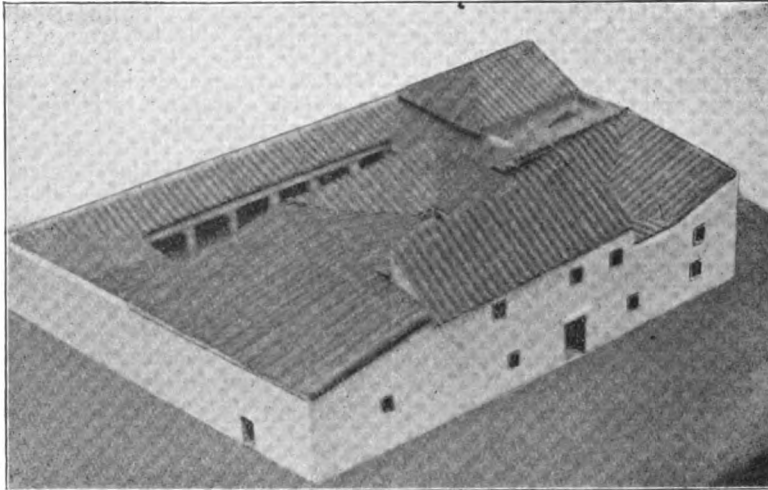
In connection with geography, we have made a number of relief models (by the layer method), illustrating typical land forms and various stages in the cycle of erosion, *e.g.*, falls and reaches; cañons, mesas, and buttes; meanders and ox-bow lakes; water gaps, &c., as well as several working models, *e.g.*, of artesian wells and geysers.

The accompanying photograph of our Roman house will show the kind of results obtained, and the following account of how it was constructed may prove of use to some teachers who wish to try similar experiments.

The first business (after securing the co-operation of the manual instructor) was to obtain the necessary data, and for these we turned to Auguste Mau's book on "Pompeii: its Life and Art" (New York: The Macmillan Co.), which contains numerous plans, sectional drawings, and restored elevations of houses in Pompeii. We selected the House of the Vettii, because it was treated in great detail, and we also happened to have a wall-picture representing its interior.

The manual instructor then proceeded to make a small cardboard model to scale, which, on completion, was unfolded, so that each part could be used as a pattern from which to make the working drawings. These were made four times the size of the cardboard pattern, and each boy, on completing his drawing, had it checked by the instructor, and then set to work to execute his portion in wood. This provided a good exercise in accuracy in using simple tools, such as the saw and plane, &c., and the results could be checked easily by laying the wood on the full-size drawing and seeing whether they coincided. In this way all the walls and roofs were completed in two or three lessons. Meanwhile a solid wooden base had been prepared and faced with drawing paper on which a full-sized plan of the house had been drawn, and on this the impluvia had been sunk in the two atria, and the pillars of the peristyle—turned on the lathe by one of the boys—set up in their proper places. The help of the art master was called in at this point, and under his direction some of the best boys at drawing copied and coloured some of the wall-paintings illustrated in Mau's book, and these were then glued on to their respective walls.

The house was now ready to be put together. It was decided to make the roofs removable, so that the rooms and wall-paintings could be seen. To get the effect of tiling, fluted packing cardboard was used, being cut out to the required shape, glued on, and painted brick-red. The house was now painted a creamy white, and the base was coloured to represent cobbled streets. The model was now complete. Most of the finishing was done by a select few of the better



boys, while the rest of the form went on with the ordinary manual course.

The result of the whole business is that we have an excellent model of a Roman house for future use, while the boys who made it have gained a thorough knowledge of the arrangements of a typical Roman house, and are able to picture scenes in Roman domestic life in something like their true setting. It was most entertaining to hear these youngsters talking of atria, peristyles, impluvia, fauces, &c., as if they had been used to them all their lives.

Herr Mau's book provides data for the construction of several other Pompeiian houses, and those in search of similar material for the construction of classical models will find ample data in Dr. H. Luckenbach's "Kunst und Geschichte," erster Teil, "Altertum," published by R. Oldenbourg, at Munich and Berlin.

For mediæval models we have found Viollet le Duc's "Annals of a Fortress" (Sampson, Low and Co., 1875) and "Military Architecture" (Parker, Oxford, 1879), Parmentier's "Albums Historiques" (Armand Colin, Paris) and Cowper's "Art of Attack and Development of Weapons" (W. Holmes, Ulverston), all extremely useful.

If any of your readers care to learn more about the way in which we have arranged that the work should not interfere with the regular manual course, but should serve as a part of the workshop training, I am sure that our manual instructor, Mr. W. H. Dawson, would be glad to answer any inquiries on the subject, and I should be very pleased to give any further information as to the sources from which our data

for the various models have been obtained.

F. G. SNOWBALL.

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#### Consolidated Schools in Canada.

IN view of the impending changes in the English educational system, may I direct your attention to two of the problems involved, and suggest solutions to them? The starting point of all education lies in the elementary school or its equivalent. In towns the organisation of this school is easy; in rural districts many difficulties present themselves.

(1) The provision of a teacher who is capable of giving instruction efficiently in a large and varied number of subjects.

(2) The irregularity in the attendance of the scholar owing to the distance that a child frequently has to come before reaching school.

(3) The comparatively large expenditure which has to be undertaken in order to secure the same standard of efficiency as in the town school.

The first of these is not so serious a problem in England as it is in Canada, because the average

English teacher is considerably older, very much better trained, and far more intellectual than the Canadian teacher. At the same time, the teacher who has to teach everything is being forced to attempt a task beyond his powers, and the scholar suffers in consequence.

With the second the physical well-being of the child is involved. It is impossible to impart instruction to children when they are not in the proper physical condition to accept it and profit by it. Far too many of our country children are required to walk too great a distance to and from school each day. When the weather is bad this leads to irregular attendance and delays the progress of the whole class. In ordinary circumstances the child is already tired when it reaches school in the morning, and very often is quite unfit for work.

The facts contained in these statements are so well known to your readers that it is quite unnecessary for me to enlarge by giving concrete examples. The solution that I offer is that known on this side of the Atlantic as the consolidated school. The idea had its birth in Massachusetts in 1869, when it was proposed to unite three or four rural school districts, build one central school, and convey to it in vans such scholars as lived more than one mile from the school. The principle was first introduced into Canada in 1902, and spread to Manitoba in 1906, where, in spite of ridicule and opposition of all kinds, it has become firmly rooted, and is working most successfully. And why? Let me summarise from the report of Mr. Chas. K. Newcombe to the Minister of Education in Manitoba (*cf.* Dept. Rep., 1909).

Wherever it has been tried consolidation has meant the employment of better teachers. Good teachers gravitate towards the larger schools. A teacher is willing to do harder work in a graded school for a lower salary than she can earn in a rural school, for the larger school brings companionship. The larger life of the bigger school makes it possible to retain these teachers for a longer period of time. Then the number of teachers makes possible some degree of specialisation. The country child is entitled to just as good an education as the child in the town or city. The graded consolidated school is able to provide a specialist for the lower grades and a capable competent teacher for the seniors. The central school is the bigger school, and it is worth while to care for it properly. Consolidation means better equipment at less cost, for needless duplication of maps, charts, globes, and library books is avoided. But the chief advantage is not the specialisation which it makes possible: it is not the better educational plant with comfortable and hygienic surroundings for the children; but it is to be found in the fact that the attendance is increased greatly and is very much more regular.

For example, after consolidation, the average daily attendance at one school rose from 54 per cent. to 87 per cent.; in another from 44 per cent. to 91 per cent. In one district where the old rural school was in being the average attendance was 56 per cent.; in the adjoining districts, where there was practically the same number of scholars enrolled, but where they were conveyed by vans to a central school, the average attendance was 94 per cent.

These facts illuminate their own case. The principle of consolidation is recognised in regard to our secondary schools. The Worcestershire County Council subsidises the Worcester Royal Grammar School, and arranges for the transportation thereto of boys from Malvern, Droitwich, and Pershore. Why not apply the same principle to the solution of the elementary-school problem?

Now to move a step higher. The ideal purpose of

the secondary school is to send scholars to the university, but the average school only sends a very small percentage in this direction. In the mind of the ordinary parent the grammar school is essentially a "finisher"—a putter-on of the final gloss after the pupil has passed through the elementary school; and it is to this attitude that one can trace the average school life of the boy in the secondary school to be less than three years. Instead of a means to an end the school is treated as an end in itself. The result is a wastage in all directions, and, I think, the least the secondary school can do is to try to meet the situation, even though it was not specially constructed for the purpose. It seems to me that the remedy lies in the provision of more "hand and eye" training in the place of languages. The amount of time spent by a boy upon Latin and French during the course of about two years *only* is valueless, both from the practical and from the educational point of view. It should be possible to incorporate in every secondary school a department (which tentatively I will call the "technical side") the curriculum of which would consist of English subjects, mathematics, science, and manual instruction. It would bear the same relation to the rest of the school that, say, a modern side does to a classical. In the larger schools it would be a separate entity. In the smaller a good deal of co-operation could be arranged among the classes. The boy taking languages would reap the benefit of this arrangement in the opportunity for greater and quicker progress in his subjects; the boy on the technical side would receive an education more fitted to his character; the school would be strengthened owing to the possibility of appointing a properly qualified and whole-time member of the staff to teach manual work instead of leaving this branch to the tender mercies of a member who happens to know something about carpentry.

The chief obstacle to such a scheme being brought to a successful issue is the cast-iron system of the Board of Education in respect to grants! Although some improvement has been made in recent years, there is room for yet more, especially in regard to freedom in the arrangement of curricula and timetables.

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## The School World.

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# The School World

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SIXPENCE.

## THE REFORM OF SECONDARY EDUCATION.

By Prof. HERBERT A. STRONG, M.A., LL.D.

Emeritus Professor of Latin, Liverpool University.

**D**R. GRAY'S book, "The Public Schools and the Empire," reviewed in *THE SCHOOL WORLD* for July, is one of the most important of those published on educational matters in recent years, and it is to be hoped that everyone interested in education will peruse it carefully. More especially is it to be hoped that the parents of children of both sexes will take heed of its warnings, and will find in it an eloquent utterance of the misgivings which the more thoughtful of them feel as to the present state of things in all branches of education. Dr. Gray's aim and object is to bring up our rising generation of young men to be, first and foremost, good citizens. To fulfil this ideal it is necessary for them to be possessed not merely of a disinterested and unselfish character, nor is it sufficient that they should be industrious and talented: it is imperative that their studies should be adapted to their environment.

This environment consists in a world of beings whose struggle for life is far fiercer than it was a few decades ago, and whose capacity for holding their own in that struggle needs to be strengthened by every means that their education can afford. Radical as are the changes which Dr. Gray advocates in our system of education, he has no sympathy with Socialistic Communism. On the contrary, he wishes, and expresses himself with passionate ardour on the subject, that every citizen of the Empire shall deem it his bounden duty to qualify himself to his utmost powers to develop that Empire by strenuous action based upon knowledge. And the question which he sets himself to answer is whether our present system of education, especially in our so-called public schools and universities, is calculated to rear a generation fitted for this great task.

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Dr. Gray lays it down that the prevailing note in the expression of English feeling is a cheery optimism which insists on believing that such is the grit of an Englishman, and such his luck, that he is certain, whatever may be in store for other nations, to come out triumphant in the end. It seems to the present writer that the nation as a whole is too languid and indifferent even to entertain such mistaken faith in itself. The feeling seems rather to be that nothing is of much matter: things will last our time, and no cry of patriotism will raise our wages. This state of carelessness seems due not to any particular vice, but simply and solely to national ignorance. Now ignorance and stupidity are often confounded, and the German poet was right when he said that "The gods themselves despair of stupid heads." Accordingly it seems that the accusation made against our public school boys of their comparative uselessness when transferred to the democratic dominions of the Empire, should certainly be extended to the mass of the population which emigrate from these islands, rich and poor alike. The working classes of England have many fine qualities, but their ignorance of the conditions of the Empire in which they are a ruling factor is colossal. It is the conceit born of ignorance which renders the "new chum" or "tenderfoot" so unpopular in our great overseas dominions. The first reform in this direction should be made in our elementary schools, in which the geography of the Empire should be taught much more thoroughly than the number of rivers in Siberia, and in which the boys and girls attending them should be made above all things to understand the duties of citizenship.

As Dr. Gray says, our so-called public schools are absurdly so named, for they are only "public" in the sense that they are governed by a committee, and that the profits arising out of the fees paid for instruction pass into the hands, not of private persons, but

of this committee, to be used for the interest of the school. In the system of management of these great schools, at which the wealthier classes of England are educated, there are two reforms which must strike anyone endowed with an ordinary sense of justice as needful and pressing. The present writer feels that both the welfare of the school staff and the sense of the debt due to the founders of our great schools are by the present system violated. Under whatever kind of government these schools may pass, it is admitted by all thinking men that the main aim of those responsible for the nomination of the staff of masters should be to acquire the services of men of intellect, capable of imparting instruction, and real enthusiasts in their love of teaching. To enlist the services of the best men for this purpose, it is before all things necessary that they should be well compensated for those services. They should have leisure to study during the whole of their career, and should at the end of that career be adequately pensioned. They should also know that success in teaching ensures promotion, and to realise this end some authority should be constituted to take all our more important secondary schools under its supervision, so that promotion should take place regularly in accordance with merit, and not as a sequel to influence or favouritism.

The system at present in vogue of rewarding masters by allowing them to keep boarding-houses for pupils should be changed. By it the masters are entitled to play the part of hotel-keepers to a number of guests who may or may not be satisfied with their treatment, but are, as a rule, unwilling to make any complaints. The master, having to keep his hotel, and to occupy himself with the welfare of the boys—some of whom are probably on the sick list—has scant leisure to devote to the preparation of his school lessons, or to the study of methods of education. But the worst feature of this hotel system is that no masters can be allowed to open a boarding-house unless they are, in the opinion of the headmaster, fit to do so. This is perfectly right and natural; but the result is that many masters who happen to be excellent and ambitious scholars, but are by their temperament unfitted for hotel-keeping, are obliged to remain unrewarded on the comparatively small salary paid to them for their work as teachers in the school.

A boarding-house master's income may run up into thousands; a real teaching master may pass all his life on a salary of a few hundreds. The obvious remedy for this state of things is to place in charge of the hotels persons who have nothing to do with the school

teaching, but whose whole duty shall consist in consulting the welfare of the boys committed to their charge. The boarding-house master should receive a fixed salary, and the profits made by the hostels should be pooled and divided among the masters. By this arrangement students would be attracted into the profession of teaching, and the boarders would profit by the attention which could be devoted to their needs by a person who should be encumbered with no other duties.

The next and very pressing measure of reform necessary is that of the system of election to foundation scholarships at our public schools. They were intended to enable poor scholars to obtain a good education, and when the present writer was at Winchester in prehistoric times none of us scholars were other than poor. It is indeed true that the competitive system had already been adopted at this school, but I think that rich men at that time must have thought it inconsistent with their self-respect to compete for the honour of having a son enrolled as a charity school boy. As things are at present, a boy, or rather a child, is frequently sent to a teacher who prepares boys to compete for such scholarships, and the "crammers," who are highly competent men, demand a very high fee, by no means disproportioned to their services, but quite beyond the means of the parents belonging to the class for whom these scholarships were intended. It is quite possible, as I have myself seen in one of the universities in which I have taught, to ascertain the circumstances of a parent who may wish his or her son to obtain a foundation scholarship, and this measure should be taken.

That is, it should be taken if the system of competition for scholarships by examination of boys of tender years is to be allowed to continue at all. It would be mere waste of space to cite the numerous authorities, teachers, physiologists, philosophers, who have warned us against the cruelty and mischief wrought by our present system. This system is harmful to a boy's intellect, to his character, and, above all, to his future sanity of mind and body. At an age when the tastes which should guide his teachers in directing his studies are beginning to develop, he is tied down to a course of study which he may dislike, and yet in which his talent, aided by careful coaching, may gain him a place of honour. He may in after years bitterly regret the compulsory intellectual servitude to which his cram programme reduced him. He is in danger of becoming an intellectual prig, being regarded as a prodigy by his grateful parents, and as one success more for his preparatory

school by his industrious teacher. But often, too often, the strain put upon him during the critical period of his adolescence causes, even before the end of his school or university studies, an intellectual paralysis. His mind and body alike are affected with torpor. Mental and physical injury results. Herbert Spencer wrote half a century ago: "People are beginning to see that the first requisite to success in life is to be a good animal. The best brain is found to be of little service if there be not enough vital energy to work it, and hence to obtain the one by sacrificing the source of the other is now considered folly—a folly which the eventual failure of youthful prodigies constantly illustrates." Thus spoke the philosopher, whose wise words Dr. Gray aptly quotes: their wisdom would be endorsed by the College of Surgeons, and not improbably by the unanimous votes of any modern assembly of educationists—*Pur non si muove!* But it must be made to move and disappear.

It will, of course, be asked, What system do you propose as a substitute for the competitive system now adopted: surely election by mere interest is unfair, and in its injustice leads to worse results than the present system? The answer seems, in the language of Parliamentarians, to be in the negative; almost any system would be preferable to one which gave such disastrous results as the present. Surely a committee might be formed to judge, in the case of a single school or of a group of schools, whether the applicants for foundation scholarships were in every way suitable boys and worthy recipients of the charity of the founder. In any case it should not be hard to find some system productive of better results than that in vogue at present.

Next to such administrative reforms necessary for our public schools we have to hope for the creation of a new atmosphere. The snobbery which is the natural result of our marked caste distinctions should give way to a feeling that neither birth nor wealth can raise one being above another; superiority in the estimation of the individual schoolboy must depend in future on his intelligence, his conduct, and his gentlemanly feeling.

The whole curriculum of our public schools calls for revision, and the direction which reform of studies in these schools should take has been pointed out by Mr. Benson in his "Upton Letters." Latin and Greek must consent to be degraded to this extent from their pride of place, and they must be regarded as special subjects suitable for certain boys who either show a capacity for learning them, or to whom they will be necessary in their

later career. Latin was, of course, in the Middle Ages, and even later, the *lingua franca* of scholars, and, indeed, Corderius tells us in his "Colloquies" that the servants of his household could converse in that language. Down to quite recent times lectures and commentaries were written in Latin, which served as a kind of written Esperanto for the learned. Latin was again the language of the Latin Church and of the Roman Curia. The universities inherited the past traditions of the times when Latin was supreme, and as this language became less and less necessary to the workers of the world, it became, together with Greek, to be the main object of study of the ruling classes in the country. A tincture of the classics was, and is yet, considered as indispensable for a gentleman as the correct pronunciation of the letter *h*. Parliamentarians loved to enliven their oratorical outbursts by a few tags from their Latin grammars, and popular authors found it to their advantage to point their style by the same method.

Now there can be no question at all about the splendid results of a good knowledge of the stately literature of ancient Greece and Rome, and the point need not be laboured here. It would be a crime to civilisation to belittle such knowledge, or to put it out of the power of learners in any country to pursue a course of study in which the classics should form the main ingredient. Now at the present time all students are compelled to go through some part of the classical curriculum, and although in one of our ancient universities Greek has been declared unnecessary for entrance examinations, the sister language is imposed on all and sundry whether it seem suited to their needs and capacities or not. The obvious remedy for this is to adopt the system wisely chosen by our provincial universities, and to make the classic curriculum one avenue to the degree, and to maintain the standard as high as possible. It is high time that the universities should adapt themselves to the environment of the age in which we live, an age in which our industrial system, the advance of science, and the increasing need of a knowledge of political economy are imperiously demanding carefully trained teachers. The universities should learn to regard themselves as the guardians and supporters of all higher learning, and should be careful to distribute the rewards for the instruction they may give with perfect impartiality. The impression of the present writer is that the value of the classics learnt at the universities for a mere pass degree is as a rule very little indeed. If the classics

were allowed to occupy the curriculum leading to a degree, while different branches of science were allowed to rank equally with the classics for this purpose, it would be possible to raise the standard for the degree in classics, and thus to render their study much more fruitful in its results.

Dr. Gray is also to be thanked for insisting on the fact that it is not possible for the public schools to free themselves from the adoption of the present curriculum prescribed at the universities, unless and until these bodies shall have altered their habit of offering scholarships and bursaries almost exclusively for proficiency in classics. So long as this system lasts, so long, it is obvious, will the necessity be imposed on the schools to prepare their most able boys exclusively for a classical education. It would be well if the university authorities would consent to a different adjustment of these valuable prizes, awarding them according to the number of candidates likely to present themselves for each degree course.

Space has permitted me to touch on merely the main points in our public schools which demand reformation. Dr. Gray agrees with most of these suggestions, but expresses his despair at ever seeing them carried out unless by the drastic action of the Government. Is it not possible, in view of the present discontent, for the headmasters of all secondary schools, in conjunction with the authorities of the universities, to work out a scheme of reform independently of the Government, which scheme should satisfy the ever-changing needs of the age, and bring order out of our educational chaos?

### SCHOOL CADET CORPS.

By J. T. PHILLIPSON, M.A.

Headmaster, Christ's College, Finchley.

**O**PINIONS differ as to the necessity of training the sons of the Empire to the use of arms, and it is not the purpose of this article to enter into a controversy on that point; but no one who has had to do with the organisation and maintenance of a cadet corps in a school can fail to realise its value on the educational side. It is a form of discipline which appeals to boys on account of its obvious sense, it develops smartness in dress and de-

partment, a consciousness of solidarity, an instinct of emulation; success on the range cannot be achieved except by care and practice, by self-restraint and steadiness; and, not least, it enables many a boy to "find himself" who would never do so in other departments of school life.

The great public schools and others of the larger schools long possessed volunteer corps, which in process of time were converted into officers training corps. But for other schools of lesser fame this was impracticable, either because of the obligations involved or that the cost was too great. Many of them, however, believing in the value of the training, established miniature ranges and taught their boys the elements of drill; some adopted a uniform of sorts, some did not even go so far as that.

At length, in May, 1910, a War Office Order appeared empowering the county associations to form one or more cadet battalions affiliated to the Territorial battalions; any school or similar organisation might furnish one or more companies under a minimum of obligation and with wide powers of self-direction. As this school was among the first in the country to join this movement, and as we have had a good many inquiries concerning ways and means, a brief account of what we have done and are doing may be of use to others.

The initial problem is that of the cost to the parent; the second, that of the cost to the school; the third, the choice of a suitable uniform; the fourth, that of officers. We have solved the first and third by adopting a khaki dress consisting of a Norfolk jacket of semi-military appearance with knickers buttoning at the knees (Fig 1). These, worn with stockings and ordinary neckgear, make a capital suit, which for wear compares very favourably with the usual school dress; indeed, I was assured the other day that it outlasts three ordinary suits. To become a uniformed person, the boy substitutes for his school cap a service cap, puts on puttees, a leather service belt instead of the cloth belt belonging to his jacket, a dark brown flannel collar and tie, and a pair of shoulder-straps (which hook on), and there he stands complete (Fig. 2). The parent provides the cap, jacket, knickers, puttees, and shoulder-straps for 26s. 6d., and a very good bargain he gets, since



FIG. 1.—School dress in khaki.

the clothes are not in addition to, but instead of, the suit he would otherwise purchase. The only other cost to the parent is a terminal fee of 1s. or 1s. 6d.; the cost of eight days in camp, 27s., which is optional; and ammunition (beyond a free minimum) at five rounds a penny.

The cost to the school will doubtless vary considerably. Here we are fortunate in having had the disposal of an adequate sum. In reading the following figures, it must be borne in mind that we have had in view a corps numbering 100, and also that it is quite possible to inaugurate a corps without a good many of the items mentioned, although they unquestionably make for efficiency.

*Initial Outlay for 100 Boys.*

	£	s.	d.
Carbines for drill purposes at 1s. 6d. each	7	10	0
Miniature rifles, say 8, at 45s. (less 10 per cent.)	16	4	0
Accoutrements—			
Belts at 1s. ...	5	0	0
Brown flannel collars at 8d. ...	3	6	8
Dark brown ties at 8d. ...	3	6	8
Shoulder titles at 6d. ...	2	10	0
Haversacks at 8d. ...	3	6	8
Officers' uniforms, 3 at £8 ...	24	0	0
Sergeant-major's uniform ...	1	6	6
*Orderly-room outfit, racks for carbines, furniture, &c., say ...	5	0	0
*Registers and stationery ...	1	4	0
Range, butt and marking hut (home-made), say ...	1	0	0
*Sections.—A. Band—			
Bugles, 4 at 16s. ...	3	4	0
Drums, 2 at 40s. ...	4	0	0
B. Ambulance—			
Stretcher ...	1	8	0
Bandages ...	0	7	0
C. Engineering—			
Sheets, tools, rope, &c., say ...	1	0	0
D. Signalling and scouting, say ...	1	0	0
	<u>£84</u>	<u>13</u>	<u>6</u>

The foregoing figures give roughly the cost of starting a cadet corps on the basis of 100 boys, with three officers and a sergeant-major. In our own case, we already possessed a rifle club of several years' standing, so that we had a range, several rifles, and a stock of carbines to start with. If the initial cost seems rather high, it should be remembered that not all these things are necessary, some perhaps are not even desirable, at the outset; those starred, for example, might be left to the future. Moreover, we have found that people are very generous in giving assistance—our drums, for instance, were a present. A well-organised entertainment will bring in quite a substantial

sum. Further, affiliation to the National Rifle Association means a grant of £10, and in this county, at all events, the Education Committee makes an annual grant which may be applied to the corps.

A few words are necessary about some of the items enumerated. It may be possible to get the drill carbines gratis, but I am not sure. We have had a good many miniature rifles, varying in price from 26s. to £2 17s. 6d.; the cheaper kinds have been satisfactory, though naturally not so trustworthy as the others, especially when age creeps on. The corps own the items grouped under accoutrements, but it would be preferable for the boys to buy their own collars and ties. The cap badges are given by our county association. If the officers are members of the staff, it seems proper that their uniforms should be provided. It is quite likely, however, that one or more of them may be already Territorial officers, or that a retired Army officer living in the neighbourhood would be willing and eager to put on his uniform once more and take command. Our caretaker, who is also drill sergeant, is an old soldier, and holding the rank of sergeant-major in the corps is, of course, given his uniform.

So much for the preliminary outlay. We now come to current expenses per annum:—

	£	s.	d.
Instructors ...	8	0	0
Ammunition, net loss on ...	6	0	0
Targets ...	1	10	0
Repairs to rifles ...	0	10	0
N.R.A. affiliation fee ...	0	10	0
Stationery and postage ...	2	0	0
Expenses of camp (Bisley) ...	2	7	0
Sinking fund, say ...	12	0	0
	<u>£32</u>	<u>17</u>	<u>0</u>
Against this may be set:—			
Subscriptions, 100 at 1s. a term ...	15	0	0
"Section" do., say, 40 at 6d. a term ...	3	0	0
Grant from Education Committee ...	8	0	0
	<u>£26</u>	<u>0</u>	<u>0</u>

which leaves a deficit of nearly £7 to be met from other sources. In our case the shortage is made good out of the games fund.

The instructors come at a fee of 2s. per hour from the nearest barracks to take classes in the various sections. The loss on ammunition is due to the fact that five rounds are supplied free each week to each cadet, besides which match ammunition is free. Camp expenses may be much or little: we pay those of the sergeant-major, and a part of those of the officers (masters in charge). The sinking fund is designed to cover the cost of upkeep;

it is somewhat early to make a close estimate, but I am inclined to think that the sum quoted will prove ample.

And now about the recruiting, organisation, and work of the corps. The age limit is twelve years, and the continued prosperity of the corps is going to depend largely on "catching them young." Its claims are urged upon the parents of all new boys. The company is divided into four sections, with an additional section of "drummers," each section being provided with its proper complement of non-commissioned officers, who are all boys.

While every effort is made to popularise the corps, boys are led to understand that the primary motive in joining should be that of duty; in fact, that by enrolling himself he is undertaking the commencement of a course which every able-bodied citizen should be prepared to undergo, that of being able to help in the defence of his country if the necessity should ever arise. There is an enrolment form to be signed, which contains declarations made by the recruit and his parent, promising obedience to the rules and regulations.

Each cadet fires a minimum of five rounds per week. For this purpose we have an indoor as well as an outdoor range; the former is in the swimming bath, and being artificially lighted makes it possible to practise after daylight. Competitions are also arranged: there is the monthly cup, an occasional sweepstake, the inter-house annual shoot, the King's Cup, besides correspondence matches with other schools, battalion competitions at Runnymede, and so on. Moreover, the better shots have the privilege of using the service range at the neighbouring barracks.

Parades take place once a fortnight and last one hour. Occasionally we have a field day. During the past year we have had four, two in the October term, one each in the other two terms. On these occasions the corps parades after chapel (about 9.20) and marches off, with lunch in the haversacks, to some selected spot in the neighbourhood, where the boys get a good insight into the elements of field tactics.

Throughout the year classes are held in ambulance work, signalling, engineering and the like, under instructors who are sent from the nearest depôt. A charge of sixpence per term

is made; to those who pass the test at the conclusion of a course badges of proficiency are awarded. These sectional classes (which, by the way, must not be confused with the "sections" into which the corps as a whole is divided) may well be extended as time goes on. They add enormously to the interest in the corps and are very popular. In speaking of the sectional classes, one must not forget to mention our drummers. It is not to be denied that they on occasion make day hideous, as they practise—*aere ciere viros Martemque accendere cantu*, but these sons of Aeolus are full of zeal, and even if at times we feel inclined to sympathise with the Triton's display of feeling, we are fain to admit that it is all for the good of the cause.

There is a certain amount of clerical work to be done in connection with the corps. This is carried out in the orderly room by the N.C.O.'s in rotation, under the supervision of the officers.

Thanks to the generosity of friends, we have several challenge cups, which are awarded annually. Reference has already been made to the inter-house shoot. In addition, we have challenge cups for the best N.C.O., the best cadet, and for the best recruit of the year. The winner is determined on a scale of points awarded throughout the year for regularity at parade, proficiency in shooting, and so on.

One of the merits of the cadet corps is that it goes far to fill up usefully the comparatively dead period between Christmas and Easter. Indeed, we make the spring term the cadet corps term *par excellence*, and wind up with a display, at which the challenge cups and other prizes are presented by some eminent person.

But perhaps the great event of the year is the week in camp. The "Boys' Bisley" was inaugurated in 1906 for un-uniformed corps, and we have sent a contingent each year since its institution. "Camp" is quite voluntary, but its popularity may be gauged from the fact that about 75 per cent. of the corps will be present this year. The cost is very small, and thanks to the whole-hearted zeal of the Bisley staff, coupled with the glorious air and the conditions under which we live there, a more enjoyable week could scarcely be devised. No doubt, as the new cadet corps movement develops it will become necessary to establish



FIG. 2.—School dress converted into uniform.



camps for cadet battalions, under the control of the various county associations. For the present the Bisley authorities, with wise foresight, have consented to receive contingents like ours, although we are no longer un-uniformed.

An account of our corps would be incomplete if an agreement were not mentioned whereby boys, when they leave, may enlist in a company of the local Territorial battalion, one half of which company is recruited exclusively from this school. The arrangement is yet in its infancy, but I believe that therein lies the germ of a movement which may prove of great value to the Territorial Force. There is no doubt that the average boy from a good school is often deterred from enlisting because of the probability of finding himself in uncongenial company. Such a reason (I will not call it an excuse) will vanish when the intending recruit knows that he will be joining what is in effect a branch of his Old Boys' Club.

### THE USE OF THE GRAMOPHONE IN SCHOOLS.

By R. F. PATTERSON, B.A., B.-ès-L.  
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THE use of the gramophone as an aid to teaching languages is, of course, by no means new, but experience in a large school suggests a number of points which it is worth while to bring to the notice of those who have not yet given the system a trial.

It may be said at once that the gramophone cannot be regarded in any way as a substitute for phonetics; the two things should go hand-in-hand. Records, such as those made by M. Rosset for Messrs. Pathé, of vowel sounds, both by themselves and as they occur in lists of words, are now obtainable, but many teachers will prefer to make the sounds themselves. Even in that case the records would form a useful check, especially when the teacher is not a Frenchman. In passing, it might be well to mention the nine phonetic charts by D. Jones and F. Rausch (Dent). These, if trimmed down by the removal of the phonetic symbol, will be found sufficiently small to arrange in a compact group, so that one can point quickly from one to another or tell a pupil to find the sound himself. It is an easy matter to make a frame on which to hang them.

One of the most frequent remarks one hears is, "I hope you are not going to spoil So-and-So by letting him imitate the horrid thing." This is owing to the feeling that the nasal quality of the records may set pupils a bad

example, but, as a matter of fact, the danger is quite imaginary. What probably happens is that the listener makes an abstraction of the nasal quality automatically in his own mind, and, just as the photographer forgets that the image on the focussing-screen is upside down, so the pupil forgets the persistent metallic twang, no doubt owing to the fact that it is constant, and he is listening to variations. At any rate, the writer has never noticed the slightest tendency on the part of pupils to imitate the nasality of the reproduction.

Apart from the production of sounds, it is well known that the gramophone is invaluable for intonation; in fact, Dr. Jones's book of intonation curves is understood to be based on gramophone records. Of course, only the more advanced pupils, or those with a special aptitude, will be able to imitate the intonation at all completely, but teachers who care to listen to a record repeated about fifty times will find themselves vastly better able to reproduce the intonation. This may sound very mechanical and slavish, but surely what is learned in one piece may be applied to others of which one has no record. Besides records of spoken or recited pieces, those of songs will be found useful. One hears the vowel of a word like "sur" all the better when it is sung to a long note, and in this connection the records by M. Vaguet, such as "Ouvre tes Yeux bleus" (Massenet), which are particularly good, may be mentioned.

As to the use of records in class teaching, where time is limited, it may be as well to translate the piece quickly to make sure that it is understood: the machine may then be turned on and the attention of the pupils may be directed to any important points, such as the quality of certain sounds or the peculiarities of intonation. The pupils may then be asked to read the piece aloud themselves, being warned, where necessary, against certain stagey, exaggerated, or affected ways of pronouncing.

Again, these records will be of use in the teaching of prosody and the art of reading French verse. The careful listener will hear the rhythm of the lines, the stress, the *cæsura*, the *liaison*, &c. Especially will this be useful in clearing up the vexed question, to what extent and on what occasions the so-called mute "e" is actually pronounced by good reciters at the present time. In this connection we may compare a record with a good phonetic transcript, *e.g.*, "Le Vase brisé" (Sully Prudhomme) in Passy's "Chrestomathie," or "Pâle Etoile du Soir" (Lectures Phonétiques: C. Motte; H. Didier, Editeur). In this latter the distinction between the more fully pronounced "ə" and the cases where it

is lightly touched upon is particularly well brought out.

It must not be thought that the records are not clear enough for finer points to be distinguished. Miss Lund (Prof. Passy's secretary) once pointed out to the writer how the late Coquelin *ainé* began some of his "eu" sounds "open" and finished them "closed." One can also hear such peculiarities as the introduction of "h" to separate vowels in such a word as "créer." It is not necessary or even advisable to imitate all one hears, but it is good training for the ear.

A great deal of what has been said so far is, of course, already well known to users of the gramophone, but there are two further points which require special mention: (1) the literary side of the question, (2) the provision of texts.

(1) One becomes very tired of hearing remarks such as, "I hear you use the gramophone for the teaching of *pronunciation*." To a certain extent this is true, but what is far more important is its use as an aid to the appreciation of literature. The pupil who hears a really good piece of literature well recited will both understand it and realise its beauty far better than he otherwise could. Any good play may be fairly amusing and interesting to read, but it gains enormously by being well acted. For instance, the selection from "Le Médecin malgré lui" becomes twice as amusing when it is heard recited by De Féraudy. With what art, also, is the pathos of "Sonnet" (Arvers) brought out!

"But," someone might object, "is all this necessary in the case of native teachers?" If not absolutely necessary, it is still most useful, since every Frenchman is not a great actor or elocutionist. The really good reciter can emphasise, and sometimes throw quite a new light on a piece without exaggerating or overdoing it. Records of pieces of real literary merit are of far greater value than, for instance, conversational dialogues written for use with the gramophone. The writer has found from actual experience that pupils appreciate a fine record of a good piece of literature and thoroughly enjoy it. The very fact that pupils are told that they will hear a piece as delivered by a great actor will alone make them prick up their ears.

(2) As to the provision of texts, we are at present confronted with a serious drawback to the use of the gramophone, since there is no collection yet published. Even a Frenchman cannot hear every word unless he has the text before him, and it is evidently necessary that a class should be able to follow in the text while listening to the reproduction. At

the present time some pieces can be found in various collections of poetry, readers, &c., but it is impracticable to get, say, a dozen different books, each in sufficient numbers for the use of the class, and even if they are obtainable, there is the trouble of collecting them, giving them out and re-collecting them. The alternative is for the master to make copies by means of the hectograph or cyclostyle, but this is a laborious business. For instance, the writer wished to use the text of "Les Deux Ménétriers" (Jean Richepin). There was first of all the bother of finding out which volume of several contained it, then it had to be bought for the sake of this one piece, and finally, the necessary copies had to be printed off. This would be too serious a tax on the time of many teachers.

One may, however, hope either that Messrs. Pathé will issue a "book of the words," or that some enterprising publisher will step into the breach with a suitable volume of thirty or forty pieces in collaboration with the makers of instruments. It will be found that a record that is extremely difficult to follow without the text, sounds absolutely clear when one has the words before one's eyes. Anyone who has attended a theatrical performance in a foreign country will appreciate this.

In conclusion, some remarks on the machines themselves may be of service. The only machine with which the writer is intimately acquainted is Messrs. Pathé's Pathéphone, a disc machine with a sapphire point, and what follows refers to that instrument; but it need not be taken to mean that there are no other efficient machines on the market, since needle machines and phonographs have many merits, the latter, indeed, possessing the substantial advantage that one may make one's own records. Moreover, the owner of a Pathéphone is by no means debarred from using needle-records, but may adapt his machine for their use by substituting a needle sound-box.

In actual use it is sometimes expedient to vary the pace of delivery, though unfortunately the range is limited by the pitch, which drops as the speed diminishes. Records which are found too loud may be toned down in several ways, first by drawing out the sapphire point, which softens the tone without muffling it, and is an important discovery. Secondly, in the case of horn models, in which wooden horns give the best results, the horn may be removed or a duster inserted in it. For use in a small room the removal of the horn is preferred by many. As regards the hornless models, in which the inside really acts as a small horn, the more expensive models are provided with doors which may be partially

or completely closed, like the swell-box of an organ. Lastly, a sort of mute can be obtained, which is slipped on to the sound-box, but the effect is by some considered unsatisfactory. This question of manipulation has been dealt with at some length, because a record which at first sounds unpleasant can be greatly improved by adjusting the rate of speed and degree of loudness.

Finally, for the benefit of those who may contemplate making an experiment with this system of instruction, it will perhaps be useful to append some particulars of equipment and a few names of suitable records, obtainable from Messrs. Pathé, whose address is 14 Lamb's Conduit Street, Holborn, E.C.

From experience the following types of machine may be recommended:—

Hornless: "Success." Price £5 5s.  
With horn: "Scout." Price £3 3s. (if fitted with wooden horn, £3 15s.).

—for which the 11-inch (29 cm.) records, at 3s., or the 10-inch (24 cm.), at 2s., give good results.

Messrs. Pathé have in view a machine which will show the words as they are delivered by the instrument, but this will not be ready for about a year. In the meantime some of the records intended for this machine can be obtained at 4s. each (14-inch). Among those of this series tried by the writer and found good are "Le bourgeois Gentilhomme" and "Le Loup et l'Agneau."

Other records to be found in Messrs. Pathé's catalogue, p. 194:—

- |      |  |              |
|------|--|--------------|
| 2445 | { Animaux malades de la peste.<br>Besace. Laboureur et ses enfants. }                                    | La Fontaine. |
| 2449 | { Fourberies de Scapin.<br>Médecin malgré lui. }   | Molière.     |
| 2453 | { Deux Ménétriers. J. Richepin.<br>Deux sonnets modernes: Sonnet, Arvers. Rêves<br>Ambitieux, Soulayr. } |              |
| 2451 | { Jeune Veuve, La Fontaine.<br>Sonnnet à Hélène, De Ronsard.<br>Sonnnet des Regrets, J. du Bellay. }     |              |
| 2499 | { Du mouron pour les petits oiseaux.<br>Pour les pauvres petits pierrots. }                              | Richepin.    |

24 cm., 2.75 francs, p. 61:—

- |      |   |  |
|------|---|--|
| 2457 | { Avare, Molière.<br>Pâle étoile du soir, A. de Musset. } |  |
|------|---|--|

Mr. Wilhelm Violet, Stuttgart, has published: (1) A very comprehensive catalogue of discs for both sapphire and needle machines, price 50 pf.; (2) a collection of the words of about sixty pieces for use with the same, price 75 pf. Both will be found very useful.

Mr. Violet proposes to publish additional texts; and all his publications may be ordered through any foreign bookseller.

## THE SECONDARY EDUCATION OF GIRLS IN PRUSSIA.

By MARK P. MAYO, B.A.  
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### I.

UNTIL 1908 girls' high schools were classed as elementary, and women were not admitted as students to the universities. Five years ago, however, sweeping reforms were introduced, and since that time a very powerful movement in favour of the higher education of women has brought girls' schools to a standard of excellence which renders them already in many instances formidable rivals of the old-established Gymnasien and Realschulen for boys. This article, though applying more particularly to Prussia, can be taken as generally descriptive of the progress made in the education of women throughout Germany.

By the Act of August, 1908, the Höhere Mädchenschule became universally a high school of ten classes, providing a ten years' course of education, roughly between the ages of six and seventeen. Every year since then we have seen several palatial new buildings open their doors for the first time as the want of new schools was realised by municipal bodies. No expense is spared in the provision of everything that can be thought of for the intellectual and physical welfare of the pupils. Some municipalities have spent from £40,000 to £60,000 on a school for 300 girls. At Friedenau, a suburb of Berlin, there is a Höhere Mädchenschule, opened in 1911, the building of which cost close on £50,000, exclusive of the site. This school is constructed on the central hall system. Crossing the vestibule, one is confronted by a magnificent open Aula, a symphony in blue, derived mainly from the series of pillars and arches of blue Dutch tiles which bound the hall on three sides. The fourth side is occupied by the stage with velvet plush curtain, grand piano, and reading-desk. The roof is of stained glass, and above it are some hundred electric lamps. There are also lamp-brackets on every pillar. The seating accommodation is for 500 persons.

The classrooms open on to the passages that run round the open hall on two floors. There are two well-equipped gymnasiums, a music-room for singing, with platform and grand piano; an art-room accommodating sixty pupils, with an apparatus-room leading out of it; laboratories for physics and chemistry, together with lecture-rooms, each provided with an up-to-date lantern. The equipment of the natural history museum, pupils' library, staff library, masters' room, mistresses' room, conference room, is as complete as the most unreasonable person could expect. On each

floor are drinking-fountains and aquaria, set in blue Dutch tiles, the aquaria containing fish, frogs, aquatic plants, &c. Concerts are given in the Aula and occasionally plays are acted by the pupils. Great weight is laid on singing, dancing, gymnastics and outdoor games. For the last-mentioned there is a fair-sized playground with tennis-courts adjoining. In the gymnasium situated on the ground floor, there is a balcony with a grand piano, and dancing takes place here on Saturday evenings during the winter months. The heating and ventilation of the building are perfection. Pure air descends by suction through shafts leading from the roof to the basement and is thence pumped by electric dynamos into every room and passage of the school. It enters each room near the ceiling, the foul air being drawn out near the floor. In winter the fresh air is warmed in its passage through two tubular boilers, the temperature being easily regulated. This school does not stand alone in the luxury and hygienic perfection of its construction and equipment. There are many others to be compared with it. At Pankow, near Berlin, a Höhere Mädchenschule with teachers' seminary has recently been built at a cost of 2,000,000 marks (£100,000). This is meant to be the last word in educational palaces, but it will probably remain not long unsurpassed.

The few details mentioned above are sufficient to show us how anxious Germans are to provide for their children not only the most healthy conditions that architectural skill can afford, but also surroundings calculated to inspire and stimulate in them a sense of the beautiful—as well as, perhaps, to impress them with the dignity of the occupations to which the building is devoted. Let us turn now to these occupations, examine the organisation of the work, and study the carefully thought-out scheme of education now developing under the new regulations that came into force five years ago.

Girls' secondary schools may be classified as follows: (1) Those which have merely the ten-year course of the Höhere Mädchenschule; (2) those which have, in addition, a higher literary side (*Studienanstalt*), preparing for the higher leaving certificate (*Reifezeugnis*), which, just as in boys' schools, gives admission, without further examination, to any German university; (3) those which have, in addition to the Höhere Mädchenschule and *Studienanstalt*, what is called the *Lyzeum*, consisting of two branches: (a) teachers' seminary, (b) *Frauenschule*.

I will endeavour to give some idea of the organisation and curriculum of the last-mentioned class of establishment. One of the lead-

ing schools of this very comprehensive type is the Königliche Augusta Schule in Berlin. It embraces—

- (1) A ten-year Höhere Mädchenschule (ages 6–17).
- (2) A Studienanstalt (classical gymnasial course extending over six years—ages 13–19).<sup>1</sup>
- (3) A teachers' seminary (four years)
- (4) A Frauenschule (two years)
- (5) A nine-year Mittelschule (practising school for the fourth-year students of the seminary).
- (6) A kindergarten, attached to the Frauenschule.

**THE HÖHERE MÄDCHENSCHULE.**—This is the kernel of the establishment. It consists of the usual ten classes, from X (minimum age six) to I (average age fifteen–sixteen), divided into three grades, or *Stufen*, and giving a complete Realschul education. In the lower grade (*Unterstufe*, classes X–VIII) stress is laid on the mother-tongue, writing and the elements of arithmetic. In the *Mittelstufe* (VII–V) French begins, usually on the direct method, more or less. The second foreign language, English, is introduced in the *Oberstufe* (IV–I), four hours a week being devoted to it for four years. In the top class there is one lesson a week on the history of art, and throughout the school regular lessons are given in religion, gymnastics, and singing. The following table shows the curriculum in detail. The figures denote the number of lessons weekly in each subject.

#### Höhere Mädchenschule.

A	Unterstufe			Mittelstufe			Oberstufe			
	X	IX	VIII	VII	VI	V	IV	III	II	I
Religion ... ..	3	3	3	3	3	3	2	2	2	2
German ... ..	10	9	8	6	5	5	4	4	4	4
French ... ..	—	—	—	6	5	5	4	4	4	4
English ... ..	—	—	—	—	—	—	4	4	4	4
History ... ..	—	—	—	—	2	2	2	2	2	2
Geography ... ..	—	—	2	2	2	2	2	2	2	2
Mathematics ... ..	3	3	3	3	3	3	3	3	3	3
Natural Science	—	—	—	2	2	2	3	3	3	2
History of Art..	—	—	—	—	—	—	—	—	—	1
Writing ... ..	—	3	2	1	1	1	—	—	—	—
Drawing ... ..	—*	—*	—*	2	2	2	2	2	2	2
Needlework ... ..	—	2	2	2	2	2	2	2	2	2
Singing ... ..	1	1	1	2	2	2	2	2	2	2
Gymnastics ... ..	1	1	1	2	2	2	3	3	3	3
Total ..	18	22	22	31	31	31	33	33	33	33

\* In the *Unterstufe* time is occasionally taken from the German lessons for instruction in drawing and modelling.

The **STUDIENANSTALT** of the Königliche Augusta Schule corresponds to the six upper

<sup>1</sup> There are three kinds of *Studienanstalt*, corresponding to the three types of boys' secondary schools: (a) Classical Gymnasium (Latin and Greek with French or English); (b) Realgymnasium (Latin, French and English); (c) *Oberrealschule* (no Latin or Greek).

forms (Untertertia to Oberprima) of a boys' Reformgymnasium.<sup>2</sup> It branches off from the Höhere Mädchenschule at the end of the seventh year, so that only those girls can enter the Studienanstalt who have qualified for promotion from class IV. Latin begins in Untertertia. Two years later, in Untersekunda, either French or English is dropped and Greek begun. (For details of the curriculum see the table B, setting forth the work of Studienanstalt and Lyzeum.) By passing the examination for the leaving certificate in Oberprima a pupil can, by virtue of the new regulations of 1908, forthwith enter any faculty of

They may even take up law or theology if they like, though these can scarcely lead to anything. Some enter the technical Hochschule and take the course in architecture. Preparation for the teaching profession entails identically the same course of study and training as that required of men, that is to say, from three to five or even six years at the university reading for the Staats-Examen, the passing of which qualifies candidates as "university-educated teachers." Before being appointed, however, they must undergo a year's training in a pedagogic seminary and a year's probation in a school, exactly as in the case of

B	STUDIENANSTALT (Gymnasialkursus)						LYZEUM					
							Teachers' Seminary				Frauensschule	
	Unter III	Ober III	Unter II	Ober II	Unter I	Ober I	III	II	I	Practical Year	II	I
Religion ... ..	2	2	2	2	2	2	3	3	3	1	(2)	(2)
Pedagogics ... ..	—	—	—	—	—	—	2	2	2	3	2	2
German ... ..	3	3	3	3	3	3	3	3	3	1	(2)	(2)
Latin ... ..	6	6	6	6	6	6	—	—	—	—	(2)	(2)
Greek ... ..	—	—	8	8	8	8	—	—	—	—	—	—
French ... ..	3	3	2	2	2	2	4	4	4	1	(3)	(3)
English ... ..	3	3										
Italian ... ..	—	—	—	—	—	—	—	—	—	—	(2)	(2)
History ... ..	2	2	2	2	2	2	2	2	2	—	(2)	(2)
Geography ... ..	1	1	1	1	1	1	2	1	1	1	(1)	(1)
Arithmetic and Mathematics... ..	4	4	3	3	3	3	4	4	4	1	(1)	(3)
Natural Science ... ..	3	3	2	2	2	2	2	3	3	1	(1)	(2)
Teaching Methods ... ..	—	—	—	—	—	—	—	—	4*	—	—	(4)
Practical Work ... ..	—	—	—	—	—	—	—	—	—	4-6	—	—
History of Art ... ..	—	—	—	—	—	—	—	—	—	—	(2)	(2)
Kindergarten work ... ..	—	—	—	—	—	—	—	—	—	—	4	4
Hygiene—Child Management ... ..	—	—	—	—	—	—	—	—	—	—	(4)	(4)
Civics and Political Economy ... ..	—	—	—	—	—	—	—	—	—	—	(2)	(2)
Domestic Economy ... ..	—	—	—	—	—	—	—	—	—	—	(8)	(8)
Drawing and Painting ... ..	2	2	(2)	(2)	(2)	(2)	2	2	1	—	(2)	(2)
Needlework ... ..	—	—	—	—	—	—	—	—	—	—	(2)	(2)
Singing... ..	(1)	(1)	(1)	(1)	(1)	(1)	1	1	1	—	(1)	(1)
Gymnastics ... ..	3	3	3	3	3	3	3	3	3	3	(2)	(2)
Total ... ..	32 (33)	32 (33)	32 (35)	32 (35)	32 (35)	32 (35)	32	32	31	28-30	12-30	12-30

Brackets denote optional subjects.

\* The time is taken from the various subjects concerned.

any German university on the same footing as a man. By also passing a supplementary examination in pedagogy, French, and English, she can take the practical year of the teachers' seminary and enter the teaching profession as a "non-university-educated teacher" (see below—teachers' seminary). Those who elect to pursue their studies at a university will mostly do so with the intention of becoming either secondary schoolmistresses or doctors. The vast majority, on obtaining the Reifezeugnis, will enter the philosophical faculty and study for the teaching profession. An increasing number, however, choose medicine.

<sup>2</sup> Ibid.

men. On completing the year's probation and receiving an appointment, the woman teacher holds the same rank and title as a man, but as the new regulations came definitely into force only some five years ago, the *akademisch gebildete Lehrerin* (some call her *Fräulein Oberlehrer*) is not widely known yet.

The TEACHERS' SEMINARY.—Those who complete the course of the ordinary Höhere Mädchenschule can also become teachers by passing from the top class into the Lehrerinnen-Seminar, where, after three years' study and a practical year, they can qualify for the post of "non-university-educated teacher" (*nicht*

*akademisch gebildete Lehrerin*), with permission to teach in higher elementary schools (Mittelschulen), or in the lower and middle forms of girls' secondary schools.<sup>3</sup>

The seminary attached to a girls' high school has now a four years' course. Three years are spent by the students in acquiring a more advanced education than that given in the *Höhere Mädchenschule*. No Latin or Greek is taught, but four hours weekly are devoted to both English and French, two hours to pedagogics, and in the third year four hours to instruction in teaching. At the end of the third year there is an examination, on passing which students are admitted to the practical year. This entails some four to six hours' teaching weekly in the practising school, a sort of higher elementary school (*Mittelschule*) consisting of nine classes. (French begins in V; English is not taught at all. The chief subject is German, the others being religion, history, geography, arithmetic, nature-study, writing, drawing, needlework, singing, and gymnastics.) In addition to this practical work there are lectures, model lessons, and conferences in the various subjects of the seminary curriculum. At the end of the fourth year comes the practical examination, after passing which the teacher is eligible for appointment.

(To be continued.)

## HISTORY AND DRAMA.

By FANNY JOHNSON.

NO school subject lends itself so well to dramatic treatment as history. Accordingly, in the general renaissance of drama on one side, and reformed methods of history teaching on the other, we find various attempts to utilise plays new and old as a means of historical instruction. I use the word "instruction" advisedly. For no reformed method in any direction can do away with the prime object of all teaching—the acquirement of *some* knowledge as an incentive and an encouragement to the acquirement of *more* knowledge. History, at any rate, cannot be taught heuristically. It concerns itself with facts, the source of which is to be found in books and in books only. Therefore, to books the history student must come sooner or later. And sooner rather than later, he must get hold of a skeleton, outline, modicum of fact, call it what you will. Memory must play a part here, if nowhere else, in the curriculum.

<sup>3</sup> After two years' service as regular teachers in a girls' high school these *nicht akademisch gebildete Lehrerinnen* will now be allowed to enter a university and pursue the same course of study as those who have passed the higher leaving certificate of a *Studienanstalt*, and thereby become eventually *akademisch gebildete Lehrerinnen*, entitled to the rank and designation of *Fraulein Oberlehrer(in)*. It appears that they will be excused the year of training, and as a rule the year of probation also.

Drama, on the other hand, contains three elements: spectacle, in which the æsthetic sense is called into play; dialogue, which depends for effect upon literary skill; and movement, rhythmic or otherwise. The spectacle is perhaps more universal in its appeal than any other human device. To dress up oneself, or to see someone else dressed up, is a dear delight. Even dolls, or lay figures, in robes of State or in ancient costumes, are supremely attractive, as we can see, among other proofs, from the abiding popularity of *Madame Tussaud*. Alfred with his harp, William the Conqueror in the act of putting the crown on his own head, King John clutching *Magna Carta*, and so on, can be easily suggested by the ordinary objects of the classroom; and a class of small children can be kept lively and amused by having such simple parts in a simple pageant assigned to them. Every clever teacher instinctively utilises such first aids to attention as these. But the class must have at least a superficial acquaintance with the names and approximate dates of the kings before it can enter with complete enjoyment into the play. In other words, history cannot be *taught*, but it can be vitalised and realised, by means of drama. And this applies all along the line.

Let us next approach, then, the area of historical fact which is contained in anecdotes. Fondly we of my generation look back upon "Little Arthur's History of England," which—in spite of some absurdities and doubtless many inaccuracies—has the supreme merit of seizing at once upon the comprehensible and the picturesque, the portions of story—as distinguished from history—which, having once learnt, we never after can let go. It followed inevitably that we invented little plays or games of our own, in which we enacted Queen Elizabeth and Sir Walter Raleigh, Richard II. and Wat Tyler, Guy Fawkes, and other picturesque personages. An admirable game of this kind for older children is "Nebuchadnezzar." The name of a historical person (say, John) is chosen. Then a historical scene is enacted in dumb show representing someone beginning with J (Jona), then with O (Oliver Cromwell), then with H (Henry II. and Becket), then with N (Nelson), and finally the whole name JOHN. Such spontaneous games and plays may be used occasionally in class, rather as a test of what has been learnt than as a means of instruction. Having reached this stage, the way is not long before we arrive at historical drama proper. And here we touch at once upon the relation between history and literature, and must depend for full advantage upon some co-operation of teachers of the two subjects.

Scott's historical novels and Shakespeare's historical plays present material ready to hand for senior forms. It is not uncommonly said, indeed, that such-an-one learnt all his history from these two sources alone, a statement which must, of course, be taken *cum grano*. In the meantime, younger children need a simpler diet. The books which I have received from publishers for the purposes of this article are, in fact, chiefly adapted for Standards I. to IV. Of these a very special meed of praise must be given to a carefully-thought-out series of Dramatic Readers published by Messrs. Harrap. Beginning from prehistoric times in Book I., a number of pretty little scenes are given to illustrate the period of tree-dwelling, cave-dwelling, flint implements, and so on, written in language such as children of six to eight years old could understand, and interspersed with short, non-dialogue sections. The alternation of narrative with dramatic prose enables the book to be used either as a mere reader, or as a source of recitations, or more definitely as a play-book. The next volume is continued on the same plan, with correspondingly more difficult language, to the death of Hereward, and so on to the fifth book, which deals with the Gunpowder Plot, Charles I. and the Civil War, the Rye House Plot, Monmouth's Rebellion, and finally includes speeches from Pitt on the American War.

The series is admirably graded, and excellently consistent in plan. The later volumes are based to a great extent upon original sources, some of the actually recorded sayings and speeches of the persons represented being incorporated into the scenes. In other cases I seem to recognise borrowings from such books as Kingsley's "Hereward" or "Westward Ho!" No mention is made of these or other material upon which the scenes are built. Probably this omission will be remedied in the forthcoming teacher's book, which is designed to complete the series. The change of style involved in the fact that the author has culled directly from the language of many different periods gives a continuity and sense of historical sequence to the series which could scarcely have been better attained. There is more imaginative effort in such arrangements of material than in careless dialogue composed out of one's own head.

Mr. Fred. E. Melton has—like many of the best teachers—a considerable portion of the dramatist's gift. He does not, however, seem in all cases to have pictured the scenes as in use for actual stage purposes. Children, or grown actors for that matter, would find it impossible to enact the shooting of arrows so as to hit or miss according to the stage directions in the "Robin

Hood" scenes. This, if a blemish, is indeed a minor one. For the volumes, however used, must convey a clear impression of the principal developments of English history, and lay a sure foundation upon which students of the subject may build more solidly as time and opportunity are presented to them.

We shall also hope to find in the teacher's book above-mentioned indications of the tunes to be sung to the various songs which form an effective feature of many of these plays. Mr. Melton makes no reference to the costume that might be desired when the plays are performed. But teachers would find that a spirited recitation of the words without costume would be almost as enjoyable, and certainly far less troublesome.

Costume for school plays ought surely to be treated as a separate item in the curriculum, coming under the head of handcraft or needlecraft. For, of course, equipments made by the actors themselves are greatly enhanced in value. Miss Amice Macdonell, whose historical plays have frequently been referred to in THE SCHOOL WORLD, has sets of costumes suitable for certain periods, and others may, I believe, be obtained from the Schools Musical and Dramatic Association. Miss Macdonell's latest volume consists of two plays on the legendary subjects of St. George and Beowulf. These are arranged definitely for *performance*, and suitable to that end. The useful stage and costume directions and the pictures from originals of properties or dress are continued. Although Beowulf has been dipped into many times of late by teachers in search of new material in literature, it scarcely comes by any stretch of category under the description of history. And in Miss Macdonell's version, little of the atmosphere of the early poem remains. It must be viewed rather as a fairy story. The paucity of our information about St. George is likewise a drawback, and results in a thinness of dialogue which not all our desire to take the hero and dragon allegorically can wholly overcome. However, the careful archæological instruction that Miss Macdonell always contrives to incorporate in her plays is not wanting here. But if ready-made costumes are supplied, something of the instructive effect will be, no doubt, evaded by the actors.

Such performances can only form an occasional treat. The "Harrap" readers may, on the other hand, be in constant use, and will be, no doubt, in constant demand. Quite another purpose is aimed at and served by Miss Mary Debenham's plays published under the auspices of the National Society. The earliest of these, "The Coming of the Dawn," was referred to in my article on school plays in

THE SCHOOL WORLD of March, 1909. The two latter, "A City on a Hill" and "The Light-bearers," are described by the author as miracle plays. The "Light-bearers" are St. Patrick, St. Boniface, and St. Lioba. The story of their respective missions to Ireland and Germany is given in simple blank verse, and with much charm. The author's object is to instruct children in the history of the Church, but other than Church children would benefit by such reverent treatment of beautiful subjects. Miss Debenham is careful to state her authorities. The St. Patrick is taken from his "Confession," and for the details of the life of St. Lioba, about whom most of us would have to confess complete ignorance, she has had recourse to Miss Lina Eckenstein's "Women under Monasticism." The "City on a Hill" is the New Jerusalem, *i.e.*, the Church, and the play deals with the history of the Monastic Orders, the first part, concerning the Cistercians and the founding of the abbey of Fountains, from a contemporary account by the monk Serlo, and the second part, in which Grossetête and Adam de Marisco are introduced, from the chronicle of Matthew Paris.

The National Society is also responsible for "Empire Day," by Mary Debenham, in which Britannia is greeted by the various colonies and possessions, and gives to the school children keeping holiday a true idea of what Empire should mean.

Yes, pay your ready homage, children mine,  
And see you bear in mind what Sacred Sign  
Flutters above you. 'Twill mean shame and loss  
If we forget we sail beneath the Cross.  
Bearing that Sign, can England's banners go  
Seeking for wealth and pleasure only? No.

The same publishers issue "The Pageant of Margaret of Scotland," by Cecilia Hill, which seems to have been composed and acted by the children of St. Margaret's School, Bushey. It is, as the title implies, spectacular, and needs the accessories of dress and crowds.

All the above-mentioned are designed for instruction, and are chronicle-plays rather than dramas in the strict sense. As I hinted above, there must needs be a limit to the amount of definite information to be got into a play. To have acted in Shakespeare's "Julius Cæsar" makes one certain once for all that Cæsar was murdered in the Capitol, but is apt (for example) to make one oblivious that he invaded Britain or wrote the Gallic Commentary. Nevertheless, Shakespeare's Julius Cæsar is perfect as a historical play, in that, besides its other merits, it adheres strictly to historical fact. There is nothing to unlearn, no distortion or caricature of historical figures or events. In the lesser playwrights, something of historic

truth is nearly always sacrificed with the view of making a more complete dramatic whole.

In Schiller's "Maria Stuart," or "Jungfrau von Orleans," in Scribe's "Verre d'Eau," to mention some well-known examples, it is attempted to make the heroines more dramatically interesting by introducing some spurious love interest, or by turning the plain Abigail Masham into a lovely young girl. The dramatic possibilities inherent in such well-chosen historic subjects are actually greater when the facts are not tampered with, just as Ophelia in Shakespeare's version is more pathetic than in the spurious French scene where after a brief interview with (the French) Hamlet, she goes off, saying to herself, "Il m'aime, il m'aime. Oh! que je suis heureuse!!!"

It will be said that we need not go to a play to discover that Cæsar was murdered, and having learnt the fact we are not much more affected than if it had been the murder of a common man. But when we hear that he died murmuring "Et tu, Brute!" we have the essence of a poignant situation, the essence indeed of the whole Brutus and Cæsar drama. The unknown poets and story-tellers who relate such anecdotes, or invent such appropriate sayings for historical personages, are the first dramatists, and from such germs all future drama must be evolved. The "Verre d'Eau," or "Maria Stuart," may be usefully studied or learnt by heart as literature, but from our present point of view they are not to be recommended or imitated.

In the plays by schoolboys, to which reference was made in THE SCHOOL WORLD for June last, the young composers had evidently studied their facts. The "Nine Days' Queen," by the boys of the Battersea Polytechnic School, follows the chronicles very closely, and shows signs of being based upon the latest views of that difficult period of the Reformation. A certain baldness of diction in these circumstances is preferable to a flowery and misleading fancy. Everyone knows that plays spoken are frequently better than plays read. And though the perfect play must be literary as well as dramatic, *i.e.*, it must be readable, the school historical play may well be forgiven literary incompleteness, so only it have the saving grace of veracity.

In the old-fashioned histories there were chapters of oasis amidst the barren recitals of battles and constitutional events, entitled "Social Conditions," or "Manners and Customs of the People." Since John Richard Green's brilliant "Short History of the English People," all subsequent writers have made some attempt to keep the social aspect of history to the fore, and no schoolbook is now complete without a running commentary or



reference in the body of the book to the People as the true subject of the story. Accordingly, among recently-published school plays, some of the most successful present a historic period rather than a personage. Of these, "The Baron of Brandean," by Misses Barfield and Trotter, is admirably contrived to represent the manners and customs of the reign of King John. The ladies of the castle are represented at their embroidery or arming the baron, watching the strolling players, and so on. The Lady Blanch loses her husband in private warfare with his sworn enemy Fitz-robert, and is summoned to the wicked King John's court to be bestowed by him in marriage on her husband's murderer. Thus the dangers to which both men and women were subject in those troublous times are indicated. All ends happily, the Baron having only been wounded, not dead. He recovers his wife and lands, and the whole concludes with a Maypole dance, for which careful instructions are given in an appendix. Various other manners and customs are skillfully introduced into this short play. Reference is made to illuminated manuscripts, to the salt beef and dark dreariness of winter life in the castle, to the primitive arrangements for extinguishing fires by means of hooks, to archery and other pursuits. Here, again, reference is given to the consulted authorities, and the appetite should be whetted for more information on the same lines. None of the characters except the king and queen are actually historic. All the more credit is therefore due for the picture presented of the period, which happens to be one not often portrayed in similar fashion.

Among such historico-social plays may be reckoned numerous versions of Greek, Celtic, or Scandinavian legend, founded in many cases on "The Wonderbook" or "Tanglewood Tales," or on Kingsley's "Heroes," or on that favourite of our youth, Miss Keary's "Heroes of Asgard." Manners and customs of ancient peoples are presented with as much truth as we can guess at in such plays as these, which have the additional merit of containing for the most part stories of a genuine dramatic character, such as the death of Baldr, perhaps the most successful of the Perse Boys' plays.

"Dramatic Myths and Legends" is the first of another dramatic series planned by Messrs. Harrap, and other versions of myth are in the admirable volume of "Home Plays," edited by C. Bullivant, and in "A Dramatic Version of Greek Myths and Hero Tales," by Fanny Comstock, in which Roman instead of Greek names are regrettably given to the gods. Most of these are suitable for children between ten and thirteen years. For younger pupils, "Little Plays for Little People," by Marion I. Noyes

and Blanche H. Ray (Ginn), contains a piece called "Washington's Birthday," which corresponds for American children to our Empire Day. It is very skilfully contrived on the simplest lines to include a good deal of stage business with the maximum of information about the national hero. For older pupils there are the pastoral "In the days of Chaucer," and "When did you last see your father?" "The Australian Cousin," and "Just Eighteen," all published several years ago by Messrs. Blackie, but not yet superseded or improved upon by other publishers.

Mr. Carter, of the Duke's School, Alnwick, has also sent me a MSS. play for Boy Scouts, in which he calls up the past by the familiar device of a dream of Saxon, Norman, and Tudor boys in succession. I may here perhaps mention an unpublished play of my own for girls only, "Good Queen Anne," founded on the letters and memoirs of the Duchess of Marlborough, and representing her rise and fall as a favourite. Both these have been performed before large audiences.

On the whole, the present output of historic plays for schools is by no means excessive. Although there is likely to be a certain tameness about dramatic work expressly composed for the young, it is clear that we have not yet achieved the best that might be done in this line. No English playwright has, for example, yet reached the level of Racine's *Esther*, the classic instance of a specially composed historical school play. The works of which mention is made above are not destined, so far as one can judge, for posterity. They are excellently contrived to meet a present need, and many of the authors with a little more encouragement from the public would doubtless produce much better pieces. Most playwrights suffer from not being constantly in touch with the real stage. Teachers sometimes have an advantage in being able to secure at once actors for their own compositions. But caution has to be used, lest the whole school community should become suddenly stage-struck, and call down reprimand from governors or inspectors whose theatrical sympathies are limited. When we consider, however, what our national historical plays mean to all the English-speaking peoples, we must rejoice at every effort that is made to renew the power of representing and composing drama in schools. For even in Shakespeare's time, the Prince of Denmark asking, "Do the boys carry it away?" was answered by the player, "Ay, that they do, my lord."

List of books referred to:

"Dramatic History Readers." By F. E. Melton. Book I., 6d.; II., 6d.; III., 10d.; IV., 1s. 3d.; V., 1s. 6d. (Harrap.)

"Saint George and Beowulf." By Amice Macdonell. (Allen.) 6d.

(1) "The Light-bearers," (2) "A City on a Hill." By Mary H. Debenham. (National Society.) 8d. each.

"Empire Day." By Mary H. Debenham. (National Society.) 2d.

"Pageant of Margaret of Scotland." By Cecilia Hill. (National Society.) 3d.

"The Baron of Brandean." By Margery Barfield and Eleanor Trotter. (Blackie.) 1s. net.

"Dramatic Myths and Legends." By Albert E. Sims and M. Lavars Harry. Book I., Norse. (Harrap.) 8d.

"Home Plays." Edited by C. H. Bullivant. (Jack.) 3s. 6d.

"A Dramatic Version of Greek Myths and Hero Tales." By Fanny Comstock. (Ginn.)

"Little Plays for Little People." By Marion I. Noyes and Blanche H. Ray. (Ginn.) 1s. 6d.

### PERSONAL PARAGRAPHS.

**L**AST month I directed attention to the fact that the result of the mathematical tripos at Cambridge showed the great success of what may be called the ordinary secondary schools. Two schools deserve special mention, the Central Foundation School, Cowper Street, London, and the Latymer Upper School, Hammersmith. From the former there were three wranglers; from the latter, two. In congratulating the headmasters of these schools, mention must be made of the remarkable success obtained in recent years in science and mathematics at Latymer Upper School under the senior science master, Mr. G. M. Grace.

EVERY member of the Officers Training Corps will feel great regret at the death of Major Meiklejohn, V.C. Major Meiklejohn joined the Gordon Highlanders in India, 1891. After seeing active service there, he went to South Africa, where it was his misfortune to be wounded early in the campaign. The incident in which he was wounded was that for which he obtained his V.C. On his return he held several staff appointments in the Home Commands, and came to the War Office in 1909, and there has done efficient work in the Department of Military Training. His special duties have been bound up with the Officers Training Corps, and it was while carrying out the inspection duties entailed by these appointments that he met with the accident which caused his death. His horse bolted, and in order to avoid some children and their nurse he put it sideways at an iron railing, which it failed to clear. It fell, broke its neck, and threw the Major to a considerable distance.

THE death is announced of Miss M. E. Bishop, principal of St. Gabriel's Training College. Miss Bishop was a student at Queen's College, Harley St., headmistress of Oxford High School, and in 1887 was appointed first principal of the Royal Holloway College, where she worked for ten years with great success. She offered her services to the Archbishop of Canterbury for educational work more directly connected with the Church of England. St. Gabriel's College was founded in 1899 with Miss Bishop as principal, and her work there may be regarded as the chief work of her life.

MR. F. W. STOCKS, of Felsted, has been appointed headmaster of Framlingham. Mr. Stocks was educated at Lancing College and at New College, Oxford. At Oxford he played cricket for the University, and has since played for his county, Leicester. The Framlingham authorities, it is reported, are engaged in formulating a pension scheme for the staff.

THE Rev. S. E. Longland, of Wellington College, has been appointed warden of Trinity College, Glenalmond. Mr. Longland was educated at St. Alban's School and Christ's College, Cambridge; he obtained a second class in the Classical Tripos in 1893. He then went as a master to Haverfordwest Grammar School, to Felsted, and afterwards to Wellington College, where he has been for twelve years. Mr. Longland has held a commission in the Officers Training Corps.

BRISTOL GRAMMAR SCHOOL is once more indebted to the Wills family. Mr. W. Melville Wills has presented to the school about twelve and a-half acres of land for playing fields, and proposes, also, to give a pavilion. Mr. Norwood is to be congratulated on the interest taken in higher education, and especially in that given at his school, by the wealthy citizens of Bristol.

THE Rev. E. A. Downes, headmaster of St. John's School, Leatherhead, had an anxious time in June when the main front block of the school buildings was completely burnt out. About forty boys, the occupants of the dormitories nearest the outbreak, had to rush out with very little clothing; about half their number, cut off from the staircase by the flames, made their escape by means of canvas shutters from the first and second-floor windows. The school is now making an appeal for funds to replace the buildings which were destroyed.

MISS VIOLET HONNOR MORTEN died on July 11th. Miss Morten, who was a niece of William Black, the novelist, was an enthusiastic and determined pioneer in more than one department of social work. Journalist, writer of books, founder of the Women Writers' Dinner, and nurse, she was also a keen educationist, and served for some years on the old London School Board, first as one of the members for the City, and afterwards as the representative for Hackney.

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THE REV. F. H. GEORGE, second-master at Hurstpierpoint College, has been appointed headmaster of King's College, Taunton. Mr. George, who was educated at Great Yarmouth Grammar School and Jesus College, Cambridge, was formerly a master at Berkhamsted.

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MR. F. G. SNOWBALL, of King Edward VII. School, Lytham, has been appointed headmaster of Hele's School, Exeter.

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DR. J. W. MCCRINDLE, one of the oldest and most distinguished retired members of the Education Service in India, whose death took place on July 16th, was for several years classical master in various Edinburgh schools.  
ONLOOKER.

## PRACTICAL WORK IN SECONDARY SCHOOLS.

By G. H. CLARKE, M.A.

Headmaster, the County School, Acton.

THE report of the Consultative Committee on practical work in Secondary Schools<sup>1</sup> cannot fail to interest all educationists, whatever their points of view.

It seems intended rather to suggest an object than to supply a course ready for adoption. In the prefatory note, indeed, we read: ". . . the subject is not yet ripe for final recommendations. . . ." The expense involved, the difficulty of finding teachers, the hindrances imposed by examinations, the probable opposition on the part of many, all prevent any immediate putting into execution of the recommendations of the committee—and the difficulties are, indeed, foreseen by it.

"Learning by doing" is the motto of the report. Did not the Jews of old insist on a man learning a trade? What schoolchildren are to "do" is called handwork and consists of work in cardboard, wood or metal; gardening or quasi-agriculture; and for girls domestic subjects, such as needlework, cooking, wash-

ing, housewifery. What they are to learn in these subjects is to be correlated with the work in other branches.

The writer imagines that any competent teacher would wish to connect geography with some kind of plastic work, and utilise cardboard modelling to illustrate the idea of volume, proportion and construction, continuing with woodwork, which is naturally related to physics in model making. He will go to the garden, quarry, field and wood for help in nature study. So far all will agree with the report, for the value of illustrated teaching is, of course, immense.

Yet "a system may be crushing" (p. 159). So elementary children may be crushed by spending a term trying to draw a straight line! So boys may be crushed by a period of two hours weekly of geometrical drawing! So a sensitive girl may be crushed by being set to skin and disembowel a hare! But it is not on these lines that the report is conceived.

SUMMARY OF THE REPORT.—The committee's own abstract will give the best idea of the whole:—

We may, in concluding this report, recall its main contention. We consider that our secondary education has been too exclusively concerned with the cultivation of the mind by means of books and the instruction of the teacher. To this essential aim there must be added, as a condition of balance and completeness, that of fostering those qualities of mind and that skill of hand which are evoked by systematic work of the kind described in this report. We think that the time has now come when every secondary school should provide for the teaching of some branches of educational handwork, should make them an integral part of its curriculum, and give them a position on the same level with other subjects studied. The value of such work, both as an element of a general education for all pupils and as a preparatory training for the special needs of some, has been amply demonstrated by the wide and representative body of evidence which we have had before us.

We have endeavoured to show, as clearly as possible, the practical difficulties that at present hinder the legitimate development of handwork subjects. Among these two are of chief importance: first, the lack of recognition and of adequate means of education and training for their teachers; secondly, the restricting influence at present exercised on school work by external examinations. We consider that the information we have received during our consideration of this report supplies further evidence as to the need for altering our existing system of examinations in secondary schools on which we have already reported to the Board. These difficulties, and the means that we have suggested for overcoming them, we would commend to the earnest consideration of all those who are engaged or interested in secondary and higher education. But, above all, the attitude of depreciation too frequently adopted to-

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<sup>1</sup> Cd. 6849. Wyman & Sons. Price 1s. 6d.

wards these branches of work must be revised in the light of fuller knowledge. It rests, as we have seen, partly on uncriticised tradition, partly on misunderstanding of their nature and possibilities. We are confident that, when the importance of this side of education has been more widely realised, the practical difficulties in the way of its progress will disappear.

**HANDWORK A NECESSARY PART OF EDUCATION.**—Thus we must look on systematic work with the hands as a necessary part of secondary education. To continue almost in the words of the report, handwork has a social value, as it tends to correct the depreciatory attitude towards work with the hands which has generally obtained in the past. Here we interpolate that, even if the schoolboy placed handwork in his own estimation on a level with geography, or “stinks,” or Cæsar, it would not be highly venerated, nor would the schoolboy be alone in his attitude towards handwork, for we read (p. 7) “on the psychological side there appears to be much need of research as to the degree to which the brain is affected by the systematic training of the hand.”

The report recognises difficulties and meets objections. For instance, handwork subjects must be recognised in any examination scheme or the pressure of circumstances will oust them from the curriculum (see p. 54). The committee seems whole-hearted in its demand for handwork for all. The advocate of vocational training will perhaps accuse the committee of putting a spoke in his wheel. Vocational training means: law for the future lawyer; agriculture for the future farmer; commerce for the future merchant; domestic economy for the future housekeeper; but not law for the doctor, nor farming for the business man, nor domestic economy for the lawyer, nor manual training for the classical scholar. “*Suum cuique*” we seem to hear murmured.

**RIGIDITY.**—The schoolmaster may feel inclined to look on this demand as an instance of that rigidity common in English education. He will remember the days when science was the main object of “A” Schools, when in language teaching grammar held the field. On learning that handwork should be done by all, he will be tempted to look on it in the light of—“classical training for all,” whether suitable or not.

As one of the witnesses (Mr. L. S. Lloyd, H.M.I.) said: “There should be distinctive types of schools” (p. 173). We need, of course, classics for some, handwork for others. A German schoolmaster visiting England, on leave, with a bursary granted for purposes of educational inquiry, remarked a few days ago to the writer: “In England you say that we Germans live under a cast-iron system of edu-

cation prescribed by bureaucrats. My reply is that our directions are given by people of practical experience, while you English suffer from the interference of busybodies and of governors who are quite unfitted to have any voice in school arrangement.” Germany would never have tolerated the tyranny of “A” Schools, but would agree with grouping departments of schools under various types.

**CORRELATION.**—The committee insists on the correlation of handwork with other subjects. As is reported in substance on p. 34, the interest of pupils is stimulated by the modelling of objects connected with science, history and geography. Many a boy has been roused to keenness in a subject by being set to make a model of a Roman villa, a monastery, a battlefield, an inclined plane.

But the most careful correlation may be ineffective. An orderly plan of work, covering possibly several years, prepared by the teacher and known in its entirety to him, loses its force when doled out to the child in daily doses. No doubt the spelling of the word window, and the cleaning of the panes of one, exercise an effect—but is it educational?

Place before a child, of age to judge of such matters, the course he has been through and it is found that he may disown it. What is clear to the experienced adult, who has drawn up the syllabus, escapes the notice of many an intelligent pupil.

In saying this, we do not in the least belittle the value of handwork and of teaching with an eye on other subjects than that absolutely under consideration. But we believe that, to make an inquiry complete, children should be called as witnesses as well as inspectors and teachers interested in their subject, for: “*Vous êtes orfèvre, Monsieur Josse*”! As book subjects are uncongenial to some, so handwork and domestic subjects repel others. The assumption that one course is good for all seems scarcely tenable. The evidence of intelligent pupils would be of the utmost service.

**HANDWORK IN ELEMENTARY SCHOOLS.**—To give all sides of the question, we quote from the report, in support of handwork in elementary schools:—

Two crucial instances may be given showing the beneficial effect of the introduction of handwork upon the ordinary subjects of the school curriculum. The first is supplied by the Swedish primary schools, the second by Chetham’s Hospital School, Manchester.

The Sloyd system of handwork was in its origin an economic, not an educational enterprise. It was with the object of reviving the old cottage industries of his country, which were decaying under the influence of factory competition, on one hand, and the purely bookish curriculum of the primary schools on

the other, that in 1872 a young engineer, Herr Otto Salomon, established workshops in connection with the schools on the Nääs Estate of his uncle, Herr August Abrahamson, a wealthy and philanthropic merchant of Gothenburg. The Government inspector was at first inclined to veto the scheme on the ground that the proper subjects of school education were certain to suffer. He ultimately agreed, however, to allow it to be tried as an experiment for one year, on the understanding that, if the result justified his apprehensions, it should be abandoned. At the end of the year it was found that far from suffering injury, the ordinary school work was distinctly better done than before. The inspector accordingly withdrew his objection, and Herr Salomon, having thus unexpectedly discovered in handwork an educational force, devoted the rest of his life to its development on educational lines. The system thus elaborated is well known under the name of Sloyd woodwork. The State first tolerated it, and subsequently encouraged it, by a direct grant. Its adoption in the Swedish primary schools has always been optional. The number of schools taking it has grown steadily year by year, and now amounts to about 75 per cent. of the whole.

Chetham's Hospital is an old endowment, and the school is conducted on elementary lines. Mr. (now Sir) William Mather, in a visit to the United States, had been greatly struck by the manual training carried on in the public schools, and on his return offered to establish and equip for Chetham's Hospital a workshop with tools for wood and iron work, and with all accessories for drawing, &c. The scheme encountered considerable opposition from some of the school staff, who feared the difficulty of satisfying the requirements of the Board of Education, if the time at their disposal were curtailed. During the first year, therefore, it was only put into partial operation. One-half of the boys were put to handwork for three hours a week taken from the ordinary school hours, the other half pursuing the old curriculum as before. At the end of the year it was found that the former had not only not fallen behind the rest in the book subjects, though they had spent three hours a week less upon them, but in some subjects, particularly mathematics, and more especially geometry, they did markedly better. So decisive and convincing was the result that opposition at once disappeared. From that time handwork has formed a regular part of the school curriculum for every boy, and is recognised by the school staff in general as a valuable ally.

This is important testimony to the value of handwork in elementary schools.

**HANDWORK IN SECONDARY SCHOOLS.**—An openminded inquirer will be anxious to examine other evidence, particularly that touching on secondary education. He will find much prepared for him in the appendix to the report. The views expressed are of divergent character, and must be approached in a judicial spirit. Owing to the influence of Rousseau—(Emile learnt a trade)—the French Government (1792) decreed: "Young people

may not be enrolled on the civic register unless they show that they can write and practice (*sic*) a mechanical occupation" (p. 134). Mr. Carrodus, H.M.I., gives it as his opinion that: "It should be the aim to steer clear of anything approaching purely technical instruction; any specialisation during the elementary school period should be discouraged" (p. 147). Mr. Vaughan, of Glasgow, agrees with Rousseau and declares that the educational value of handwork is very great (p. 206). On the other hand, Mr. Fletcher, H.M.I., says: "It did not appear that manual work had as much effect in secondary schools in bringing out the weak and dull boys, as might be expected." "The educational value of handwork when well taught was very considerable." (p. 156).

The reader may notice that it is difficult to obtain proof of this, as Dr. S. F. Dufton, H.M.I., puts it (p. 151): "It was most difficult to say whether a practical side such as that at Dulwich was of great educational value, since 'educational value' was almost entirely a matter of opinion."

The committee furnishes evidence that time can well be spared for handwork. Mr. Badley, of Bedales School, shows that pupils who gave much time to handwork were able to make up for the time apparently lost lower down the school, as their general intelligence was increased (p. 54). Extracts, without context, are apt to give a false impression, so the reader is urged to refer to the report, the length of which makes criticism, within a reasonable compass, difficult. The chemist will be particularly struck by p. 125, syllabus for Form V. B. (*et passim*). As regards those pupils fitted to profit by handwork, Sir J. D. McClure (p. 255) informed the committee that two minorities existed—those who would never gain by manual work and those who would gain more by manual work than in any other way. He is supported by Mr. Ll. S. Lloyd, H.M.I., to some extent: "... he was not prepared to say that every pupil ought of necessity to have it (a woodwork course), (p. 173). Mr. Findlay (p. 230) puts the age for manual and domestic subjects at 8 to 13: "... To force cookery on every pupil in a secondary school would be a mistake, as so many subjects were already taken."

As appears from the summary given above, the committee decided that handwork is of great importance in developing mind and character (p. 5). No psychological proof seems put forward that education of the hand influences for good the functions of the brain in other, purely mental, directions. We have laboured this part of our criticism, for it is the kernel of the discussion. It is questionable

whether character can be formed. Manners can be taught, information can be acquired; but character, like brains, is a gift of God.

For the sake of the psychologist we add from the evidence of Dr. Rivers, of St. John's, Cambridge: "He was doubtful if handwork did much to influence the general power of expression, except in the form of drawing, when it might become an instrument of the utmost importance in stimulating mental efficiency" (p. 366).

**A COURSE OF HANDWORK.**—We have said that the report may not have been intended to be practical. We were, of course, thinking of present circumstances, of expense and lack of teachers. Putting all hindrances out of the question, few could object to the following scheme, though many would not allow for it the time considered necessary:—

The table is given as an indication, in the light of the experience at present available, of the line of development suitable for all classes of schools. Physical strength, control of hand, and control of eye will be the main factors in determining the order of succession.

*Average Class Ages*  
(Approximate.)

Up to 8 years	Kindergarten work.
8 to 10 years ...	Paper cutting and folding; paper and cardboard modelling; plastic modelling with clay or plasticine; brushwork; crayon-drawing, &c.; introductory needlework.
10 to 12 years	The same, further developed and applied where possible; light woodwork for boys especially; elementary needlework for girls especially. (At some point during these years the work for boys and girls might bifurcate according to their separate needs.)
<i>Boys.</i>	
12 to 14 years	Advanced woodwork; plastic modelling; gardening, &c.
14 and over ...	Metal-work, wood-carving, or manufacture of scientific apparatus; advanced plastic modelling, gardening, &c.

*Girls.*

12 to 14 and over	Needlework; cookery; laundry work; housewifery; gardening.
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It is assumed that drawing, both free and geometrical, and painting, are taught, and that they are correlated with those of the above-mentioned subjects to which they are applicable. A similar assumption is made in the case of practical and experimental science.

**EQUIPMENT.**—The equipment required for handwork teaching is set forth in a most inviting form, and will make the mouths water

of many secondary schoolmasters—and especially of schoolmistresses:—

We may here add a few words as to the equipment necessary for the teaching of the various subjects. It should be remembered that much elementary handwork can be done in the ordinary school class-rooms, and in so far as handwork methods can be adapted to the teaching of mathematics, geography, or other school subjects, there is an obvious advantage in such an arrangement. Such subjects as cardboard modelling, clay modelling, and light woodwork can easily be taken in this way if adjustable tops of the usual pattern are applied to fit on the ordinary desks.

For advanced woodwork, however, and for metal-work, and for the various domestic subjects for girls (with the exception of needlework) special rooms are necessary, allowing ample space for the performance of practical processes and for the free movement required. These rooms should form part of the school buildings.

In a girls' school the domestic subjects room should be fitted up with all the necessary equipment. Since the cleanly and hygienic treatment of foodstuffs is an essential part of kitchen training, the cleaning and care of the cookery class-room must be of a high standard. The makeshift use, therefore, of a kitchen for laboratory or other class-room purposes is to be deprecated. Sufficient equipment should be provided for these subjects to enable each member of the class to work independently. Combined work in these subjects does not afford sufficient opportunity for the acquirement of manipulative skill and for the exercise of individual judgment. Where housewifery can be taken, a kitchen, a living room, and a bedroom should be provided. They should also, if possible, be actually occupied, as this makes their maintenance a far more valuable training. Rooms such as these, however, cannot obviously form part of the school buildings in all cases, and must often be sought elsewhere.

For boys' schools, where metal-work is only taken to a limited extent, there is no reason why a lathe should not be put in at one end of the woodwork room. A room specially fitted up would, however, be necessary if this subject were taken by any considerable number.

**GARDENING AND COOKERY.**—We have chosen extracts from the report on gardening and cookery, as these are likely to be of special interest, both to producers and consumers:—

Educational work in connection with the growth of plants may be said to have two sides. The main object of the work may be either to illustrate by means of practical experiment various principles involved in the growth of plants; or to cultivate plants successfully with a view to results—and this is "gardening" in the common acceptance of the term.

The branch of work first mentioned, which may be called "cultural experiment in the open air," forms a most valuable adjunct to the teaching of those aspects of natural science that should be prominent in rural schools. The emphasis should be on the in-

culcation of a scientific attitude of mind towards plant life rather than on the cultivation of proficiency in manual operations. With this object in view, the garden plots should form a sort of open-air laboratory for nature-study. The learner would thus be enabled to study and to carry out experiments on such subjects as the composition of the air and the soil, the mode of growth of a plant, and the relation of nitrogen, phosphoric acid, and potash to the growth of plants.

With regard to gardening, as commonly understood, we have some hesitation in recommending it as a compulsory subject in secondary schools with fixed hours on the time-table. All children are not interested in gardening, and, moreover, holidays often intervene when work is most necessary. On the other hand, an increasing number of elementary schools, especially in rural districts, provide instruction in gardening, and this makes it very desirable that there should be facilities in the secondary school for continuing the work of the elementary school in this subject. Further, especially in urban or semi-urban districts, gardening may have a vocational value for pupils who intend to take up horticultural work, professionally after leaving school. The best way, in our opinion, of affording an opportunity for gardening work in secondary schools would be by means of organised school clubs, with optional membership for voluntary work out of school hours. The work of each member of the club should, however, be carefully directed by some supervisor, and all the elementary operations must be thoroughly mastered before the pupils are allowed to follow their own bent. The work could be carried out either individually or collectively.

A certain amount of theoretical work is indispensable to the practical work, and the winter months would be the best time for this side of the subject.

The close connection which exists between gardening and science makes it advisable that the instruction should be given by the science-master. Such an arrangement would not, of course, prevent the employment of a working gardener as assistant, where necessary. Encouragement should be given to teachers to attend courses in gardening, such as vacation courses.

**CORRELATION OF CHEMISTRY AND COOKERY.**—We have left for the last what is perhaps the chief part of the whole report: the section devoted to domestic subjects. The committee is of opinion that all girls, whether their schools be those of a late or an early leaving age, should reach a reasonable standard in these subjects by the age of 16 (p. 43). Much might be done by co-operation between home and school, particularly in needlework and cooking.

The often discussed question of correlation of chemistry and cooking is not wholly solved. It is thought that much more than is at present customary might be attempted in the way of illustrating science from domestic arts, to the benefit of both. But before all, let us not fall back on an emasculated syllabus which is

neither fish, flesh, fowl, nor good real science:—

Cookery may undoubtedly be regarded as a purely empirical craft, and if taught as such may afford a practical training in observation and accuracy. But purely empirical methods cannot be regarded as satisfactory or final either from the point of view of the craft itself, or from that of its possibilities as a means of education. The empirical point of view must be supplemented by the scientific if the learner is to acquire a satisfactory understanding of the processes involved in cookery and the other domestic arts, and if these are to serve as a training in reasoning as well as in manual dexterity. This end can, we think, only be attained if practical training in the kitchen is connected with scientific training in the laboratory. We agree with the majority of our witnesses in thinking that the teaching of cookery, laundry, and housewifery should be preceded by a course of at least two years' teaching in pure science.

The nature of the science work that can most profitably be done by girls of secondary-school age has been much discussed of late. We are in sympathy with much of the criticism that is directed against methods frequently adopted, where the work is too academic in character, too remote from the interests of the girls, and taught without reference to the domestic subjects. We do not consider it yet possible to pronounce definitely as to how far the teaching of elementary physics and chemistry may be modified so as to form the basis for the scientific study of cookery and other domestic arts. Though fruitful experiments are proceeding in a certain number of schools, the experience at present obtained is scarcely sufficient to enable a final judgment to be formed on this matter.

If the wish (that science in girls' schools should be tested only by inspection) expressed at the recent headmistresses' meeting is carried out, many of the difficulties referred to will vanish.

**RURAL SCHOOLS.**—Among the schools that would profit by a practical course, rural secondary schools are to be reckoned. In some few of these the majority of pupils on leaving will take up work connected with land, in most less than 30 per cent. will do so. It is suggested that English, science, mathematics, handwork, and geography should, so far as possible, "take the surroundings" of the school as a basis. Emphasis should be laid on biology and on the chemistry of living things, physics and chemistry as applying to weather, soil, and plant-growth. Cultural experiments, too, are needed. But in view of the constant interchange of population, it is undesirable that the difference of work between rural schools and urban schools should be very wide (see p. 14). Here we have a difficulty hinted at. A rural school caters for pupils whose future careers will be as diverse as those

of urban schools. Unless a school is rich enough to provide several courses, it can hardly impose a peculiar curriculum on all pupils for the sake of perhaps a tenth of the school.

**THE TIME-TABLE.**—To put in practice the provisions of the report, it will be necessary, among other things, to abolish the idea that school hours are from (say) 9 till 4, and that each pupil must be at work all the time. In the future, school will have to go on from 9 till 6; but pupils will not be in class every period, nor will the same teachers be employed all the time. There will be breaks in each pupil's time-table corresponding to subjects that he does not take. During these vacant periods he will be able to play or to do home work, according to circumstances.

**TEACHERS.**—We have but little space left to discuss the future handwork teachers and their training. The committee is fully alive to their importance. If the scheme of the report is adopted by the nation, it is evident that handwork teachers must be properly taught, trained, and paid, in addition to being granted a status on the school staff.

### THE FUTURE SUPPLY OF ELEMENTARY-SCHOOL TEACHERS.<sup>1</sup>

DURING the past year the Board of Education has been making special inquiries from local education authorities and others with reference to the supply of teachers for public elementary schools. It will be remembered that in 1907 and 1909, the Board expressed grave doubts as to whether the number of candidates for the teaching profession would prove at all adequate to the needs of the country. Since 1909 the difficulty has become more acute. The number of bursars and of pupil-teachers in their first year recognised in England was 11,018 in 1906-7; in 1909-10 it was 7,191, and it has fallen in 1912-13 to 4,325. It may be taken as beyond question that the position with regard to the supply of teachers, not only for the immediate future, but also for a good many years to come, is extremely serious. Exceptional difficulty in staffing many schools during the next few years is now inevitable. Unless the number of entrants to the profession can be increased largely and without delay, it will be impracticable in many areas to maintain the staffs of public elementary schools at even their existing strength or quality, and the Board and local authorities must abandon for many years to come any hope of further reducing the size of classes or of increasing materially the proportion of certificated teachers—reforms on which a general improvement in the efficiency of elementary education must mainly depend. It is certain that the number of individuals now teaching in the schools cannot be diminished without hardship to the remaining teachers and without losing much of the ground which has been gained in recent years by the employment of less mechanical and more individual methods of instruction.

<sup>1</sup> From Board of Education Circular 821 to Local Education Authorities.

The problem of securing a sufficient supply of suitable candidates for the profession is large and complex, and its effective solution involves financial and administrative considerations of the gravest importance. It appears to the Board of Education that local education authorities can at once be assisted to some extent and as regards some aspects of the problem by modifying the regulations for the preliminary education of elementary-school teachers, and it is proposed to introduce into the next edition of the regulations some amendments to facilitate the entrance of suitable candidates to the profession by removing certain difficulties to which the authorities have directed their attention.

These amendments may be explained most conveniently under three heads:—

(i) The provision of increased maintenance allowances for intending bursars in secondary schools.

(ii) The strengthening and improvement of the pupil-teacher system in rural districts.

(iii) The provision of some assistance for systems of educating intending teachers not falling under the existing regulations, but adapted to the exceptional needs of certain areas.

*Increased Maintenance Allowances.*—Under the existing regulations a boy or a girl who desires to be recognised as a bursar must have been in receipt of continuous instruction for not less than three years at a recognised secondary school. The Board is satisfied that this requirement has resulted in a marked improvement in the general education of intending teachers, and that abandonment of it would be inimical in the long run to the efficiency of elementary education. It has, however, been represented by various authorities that many suitable candidates owing to want of means are unable to face the expense of the secondary-school course and the postponement of wage-earning. Some local education authorities, it is true, make maintenance allowances to meet this difficulty, but hitherto assistance from the Board for this purpose has been confined to the year of bursarship, when a candidate is already more than sixteen years of age. The Board is now satisfied that in many districts the provision of maintenance allowances at an earlier age than sixteen is necessary, if the children of less well-to-do parents are not to be debarred by lack of means from entering the profession. It is proposed, accordingly, to amend the regulations so as to enable the Board to take account of all sums paid by way of maintenance allowances to a bursar during the whole period of full-time attendance at a secondary school, and to contribute to such allowances on the basis of one-half of the sum paid for this purpose by the authority. The Board's contribution will be limited to a maximum of £15, and will be paid only in respect of bursars on whom the principal grant is paid.

Since the sole object of these new grants is to increase the existing number of bursars, it will be a necessary condition of their payment that they should not have the effect of reducing the authority's existing expenditure upon intending teachers, and a provision has been inserted in the regulations with this object.

The Board recognises that, since its grants are



not payable until the bursar has completed his qualifications, authorities which avail themselves of the Board's proposal will have to incur an increased expenditure over, in many cases, a longer period before they receive any return in the shape of grants. It is proposed, therefore, to give an initial grant in the financial year 1914-15 to those authorities which adopt or extend a system of maintenance allowances to bursars or intending bursars.

*Pupil-Teacher System in Rural Districts.*—The decline in the number of intending teachers is most marked in the rural districts. This aspect of the problem is specially serious. In the past the rural districts have supplied some of the ablest teachers, and there is no reason why they should not continue to do so. Further, rural schools are small, and often have to educate in one department children of both sexes and all ages. They therefore require in proportion to their size a larger number of teachers than town schools, and cannot without loss of efficiency be worked with a smaller number of individual teachers than at present, whatever their qualifications may be. If the policy, which the Board has pursued for some years, of replacing supplementary teachers in rural schools by better qualified assistants is not to be abandoned, it is essential that the number of qualified persons available for such posts should be largely increased.

The existing provisions were designed to meet the case of pupil-teachers in rural districts where secondary schools are unavailable. The number of pupil-teachers, however, recognised under those provisions has been very small of late years, though the Board is aware that some local education authorities have recently been taking measures to increase it, and the Board recognises that in their present form the regulations do not meet adequately the circumstances of candidates in the rural districts, or give sufficient encouragement to local education authorities and head-teachers in the task of training and educating them for the profession.

The Board proposes, accordingly, to make alterations in the regulations to the following effect:—

The restriction of rural areas in which pupil-teachers may be recognised to districts which for the purposes of the Local Government Acts are under a rural district council will be removed, and recognition will be possible in any suitable rural school if the pupil-teacher employed in it cannot reasonably be expected to attend regularly at a secondary school. In such schools recognition will be given, if desired, from the age of fourteen, and may begin on the first day of the month after that in which the candidate reaches the age of fourteen. The period of recognition may be four years from the age of fourteen or fifteen or three years from the age of fifteen or sixteen. The present grant will be replaced by the following grants:—

(a) An annual grant in respect of the instruction and training given to the pupil-teacher by the head-teacher; this grant will be half the amount paid by the authority to the head-teacher in respect of such instruction and training, but will not exceed £4.

(b) An annual grant of not more than £4 in aid

of the authority's expenditure for the purposes of approved instruction supplementary to that given by the head-teacher.

(c) A principal grant of £10, payable after the end of the period of recognition on each pupil-teacher who becomes qualified for admission to a training college or for recognition as an uncertificated teacher.

These alterations make a considerable increase in the grants payable by the Board in aid of the pupil-teacher system in country districts. The grants under (a) and (b) recognise the part taken by the head-teacher of the elementary school in the education of the pupil-teacher, and emphasise the need for instruction complementary to that given by the head-teacher. These grants will be paid annually, and are not dependent upon the final success of the candidate. The grant under (c), which is only payable upon the success of the candidate, is intended to aid the authority in meeting any expenses incurred by it.

Another alteration enables the pupil-teacher to be recognised immediately after reaching the qualifying age. This change is designed to prevent any break in his continuous education and instruction. It does not imply that his practice in teaching should begin earlier than under the present regulations. A scheme providing that from fourteen to fifteen years of age the intending teacher will be mainly if not entirely continuing his general education, will be fully in accordance with the Board's regulations. On this point it is important to bear in mind that the pupil-teacher is not allowed to count upon the staff of the school in which he is employed. The change in the date of recognition will have the further effect of enabling pupil-teachers to enter training colleges or to qualify for recognition as uncertificated teachers at dates other than August 1st.

It will still be an essential condition of recognition that the school in which the pupil-teacher is employed must be accepted by the Board as suitable for his training. A course of instruction must be planned for him, leading up to an examination of at least the standard required for recognition as an uncertificated teacher, and the Board will expect satisfactory arrangements to be made by the authority for supplementing by suitable classes the instruction given by the head-teacher.

The changes now made in the regulations, together with the large increase in the grants, will, it is hoped, lead to substantial improvements in the system of educating and training rural pupil-teachers. The Board relies upon the co-operation of the authorities in developing and maintaining an efficient system, which, by producing a steady supply of well-qualified teachers, shall add not merely to the numbers but to the strength of the teaching profession.

*Other Systems of Educating Intending Teachers.*—The Board is aware that a few local education authorities have been able to obtain a supply of qualified teachers through avenues other than bursarship or pupil-teachership as defined by the existing regulations. The Board has no doubt that local conditions may from time to time indicate, as the most suitable method of educating intending teachers, arrangements which, though not falling within its regulations,

could properly be approved by it and would result in producing well-educated and efficient teachers. The Board is anxious in this, as in other branches of education, not to restrict unnecessarily the freedom of local organisation, and will accordingly be prepared to consider any well-planned scheme submitted with the view of determining whether and upon what conditions a grant can be made towards its cost. Reasons will be required for the authority's belief that the scheme is required in its area to supplement or take the place of the bursar or pupil-teacher systems. In assessing the grant the Board will have regard to (a) the extent to which the scheme succeeds or is likely to succeed in producing qualified teachers; (b) the expenditure incurred by the authority in respect of it; and (c) the amount of the funds at the Board's disposal for the purpose of aiding such schemes; this amount is at present very limited.

The regulations for the preliminary education of elementary-school teachers, 1913, will be issued as soon as possible. The main alterations are printed as an appendix to Circular 821, in which certain alterations in the student-teacher regulations are also shown. The circular is issued now in order to give local education authorities the opportunity of availing themselves at once of the Board's proposals.

### THE ASSOCIATION OF HEAD-MISTRESSES AND THE REFORM OF EXAMINATIONS.<sup>1</sup>

THE examinations sub-committee of the Association of Headmistresses was formed in 1907, as an outcome of suggestions contained in Miss F. Gadesden's presidential address to the conference. Miss Gadesden had recommended "as a substitute for the present system of school certificate and scholarship examinations . . . some such scheme as follows: The recommendation of the teacher, given through the records which represent the results of the scholars' work over a considerable space of time; the examination by a board—from which teachers should not be excluded—of the records, followed, if necessary or desirable, by an interview with the candidates; short examination papers in some subjects to test ability and proficiency of a certain kind. These should be set by examiners of a recognised university standing, all of whom should have had actual experience in teaching."

The first work of the sub-committee was to report on examination systems in other countries (America, France, Norway, Denmark, Sweden, and Germany). From these reports it appeared that Great Britain is the only country where children under the age of sixteen are allowed to sit for external examinations, and the sub-committee recommended the conference in 1908 to adopt the following resolutions:—

(a) That this conference disapproves of external examinations for girls under sixteen years of age, and invites all members of the association to co-operate in refusing to present pupils for them.

(b) That in all public external examinations after

the age of sixteen acting teachers in every case be associated with the universities or other external authorities.

Resolution (b) was carried unanimously; (a) was passed in the following form: "That this conference disapproves of external examinations for girls under fifteen years of age and invites all members of the association to co-operate in discouraging pupils to enter for them." The alteration to the age of fifteen was made to meet the needs of bursars and pupil-teachers in the provinces. At the annual conference of 1909, however, the age of sixteen was restored to the resolution, which was carried by a very large majority.

During 1909 the first of a series of conferences between the principals of women's university colleges and members of the executive committee and examinations sub-committee was held, more particularly with the view of lessening the strain of university scholarship examinations for girls. A second conference was held in 1912, and a third has been convened for October 25th next.

During 1909 a memorandum was drawn up and forwarded to the Matriculation Board of the University of London, and also to the Oxford and Cambridge Schools Examination Board, advocating the association of acting-teachers in the examination of boys and girls. The Oxford and Cambridge Joint Board replied that it was not able to comply with the suggestion; but in February, 1910, three representatives from the executive committee were invited to attend a meeting of the joint board in order to discuss certain difficulties in connection with the higher certificate examination. Through the courtesy of the board, a meeting between representatives of the Headmistresses' Association and members of the board has since taken place annually.

The Matriculation Board of London University received a deputation from the sub-committee in order to discuss the proposal. Pending the issue of the report of the Royal Commission on University Education in London, it felt unable to take any steps in the direction suggested by the association. Miss Burstall, on behalf of the association, offered evidence before the Royal Commission on the practice of the Joint Matriculation Board of the Northern Universities with regard to the co-operation of acting-teachers in examinations. Mrs. Bryant offered evidence on the relation of the University of London to the schools; and Miss Faithfull gave evidence on the supervision of girl university students.

At the 1910 annual conference the following resolution was carried:—

"That this conference desires to urge on the Examinations Board of London University the importance of creating, to follow the 'leaving certificate' examination in use in the fifth forms, a school examination of a higher standard, not lower than that of the intermediate examination, the passing of which in the proper subjects would exempt from that examination within the University."

In 1911, the association joined with the Girls' Public Day Schools Trust in petitioning the London Matriculation Board to allow candidates who hold a higher certificate qualifying, with the exception of

<sup>1</sup> From a pamphlet issued by the Association of Headmistresses.

Latin, as a substitute for matriculation, to sit for the Latin papers of the London matriculation examination. In reply, a communication was received, stating that while the Senate of the University of London could not allow candidates holding an Oxford and Cambridge higher certificate which did not include Latin, but in other respects exempted the holder from the London matriculation examination, to take the Latin papers only in their matriculation, it would accept botany as an alternative subject to Latin in the requirements for the acceptance of the Oxford and Cambridge higher certificate as exempting from the London matriculation.

Other representations have been made from time to time to the Matriculation Board. Last May a special sub-committee was formed to consider and to report to the examinations sub-committee, on changes which may seem desirable in connection with the London matriculation examination.

In 1912 letters were forwarded to the Oxford Locals Delegacy and to the Cambridge Locals Syndicate regarding the arrangement of time-tables for the senior candidates, pointing out that the excessive length of the hours for the examination and the multiplicity of the subjects caused serious and unnecessary strain on the candidates.

The Cambridge Syndicate invited, and received, a suggested time-table. Although the syndicate did not feel able to adopt the association's suggestions, the secretary promised that the general principles proposed by the headmistresses should be carefully considered.

In response to the association's suggestion, the Cambridge Locals Syndicate has agreed to include women on its rota of examiners for the Junior and Senior Local Examinations.

The chief recommendations of the examinations sub-committee were summarised at the annual conference of 1911, when the association adopted the following resolutions, which were reaffirmed this year:—

(1) That this conference desires earnestly to reaffirm the following resolution carried at the annual conference in 1909, viz.:—

That this conference disapproves of external examinations for girls under sixteen years of age, and invites all members of the association to co-operate in discouraging pupils from entering for them.

(2) That this conference regrets the increasing difficulty of university scholarship examinations for girls, and asks the principals of colleges for women at the universities to give the matter their serious attention with the view of lessening the strain of preparation and in examination.

(3) That this conference desires to direct the attention of university examining boards to the great importance of time-tables so arranged as to give the least possible strain on the candidates as regards (1) sequence of subject, (2) number of papers set on one and the same day, (3) the length of the papers.

(4) That this conference urges that it is of the greatest importance to the best type of general education that (1) the co-operation of acting-teachers should

be recognised and allowed in all school and matriculation examinations; (2) schools should be allowed and invited to present their own syllabuses for school examinations; (3) that in the testing of science teaching inspection should be more prominent than examination and that the notebooks covering a definite and consecutive course of work of the candidates should be taken into consideration in the awards of examinations.

(5) That in matriculation examinations credit should be given for the school record in compulsory subjects in the case of pupils who have passed through a complete course of studies for not less than four years in a school (a) inspected by the Board of Education, and (b) periodically examined by a university board of examiners, (c) on the staff of which there is a certain proportion of registered teachers.

(6) That this conference fully realises the importance to the community of giving training to girls of all classes in domestic subjects; and desires to place on record its conviction that:—

(i) A consecutive and definite training in scientific method through elementary science should, so far as possible, precede or accompany the training in domestic arts; and that illustrations in experimental science should be mainly drawn from everyday life.

(ii) Training in domestic arts should supplement and not replace the general subjects of a liberal education as given in public secondary schools for girls.

(iii) The examination in domestic science (so-called) by the universities in the Junior and Preliminary Local Examinations is to be regretted inasmuch as

(a) Elementary science and arts should be inspected rather than examined, and

(b) Stereotyped syllabuses are a hindrance rather than a help to the best training and its development.

Early in 1912, the report of the Consultative Committee of the Board of Education on Examinations in Secondary Schools was published. At the annual conferences in 1912 and 1913, the following resolution was carried, *nem. con.*:—

That the Association of Headmistresses is in agreement with the Consultative Committee's opinion regarding examinations in secondary schools, namely, that: "The time has come—not for their abandonment . . . but for the curtailment of their numbers, and for the correction of their results by other forms of educational supervision, especially by inspection and by a sensible regard to those sides of school life which no written examination can ever test, and for which purely intellectual discipline is not in itself a substitute."

This association further approves the suggestion of the Consultative Committee that the Board of Education should summon representatives of the various examining authorities and educational associations to a conference at which the question of external examinations in secondary schools should be discussed with a view to the reduction of their number; and hopes that the Board of Education, in conjunction with the Teachers' Registration Council, will speedily undertake the work of co-ordinating all public examinations for pupils in secondary schools.

## HISTORY AND CURRENT EVENTS.

THE laws of England are fearful and wonderful. Some have come down to us from the earliest times, originating few, if any, know how; some have been made in distant centuries, and a large number have been made by that marvellous collection of amateurs known as the Houses of Parliament, which takes the help of experts, but decides by what wisdom its own members possess. And there is little, if any, codification, so that in many matters no one can know whether the law favours him or not until he has gone to the expense and trouble of a suit. But we have been proud of the administration of these laws. Our system of judges and juries, experts and laymen, gives to the average Englishman a feeling of superiority to other nations, and this feeling is supported by the idea that the system does not change, because it needs no changing. But a recent decision as to the right of a judge to try a case *in camera*, and recent discussions as to the advisability of abolishing juries in civil cases, may cause some doubts to arise whether there is no legal history nowadays, and whether change may not be desirable even in that "palladium of English liberty," the "twelve men in a box." They are, after all, human institutions, and may err.

IN June there was a meeting in Hyde Park to protest against the Welsh Disestablishment Bill. We pronounce no opinion on the merits or demerits of this proposal, but the terms of the resolution passed at the meeting struck us as curious from the point of view of historical terminology. "We will not have our Church dismembered and four of its dioceses disestablished and disendowed." What is the connection between the two clauses of this resolution? The Church is an institution with various members (dioceses), some of which are established, *i.e.* have certain complicated relations with the State in the territories of which those dioceses are situated and some are not so. No measure of disestablishment can possibly sever the perfectly voluntary union of those members, unless they wish to be separated. "Dismemberment," therefore, is a process which can be effected only by the members of the Church quarrelling to the point of schism, as to points either of doctrine or of ritual, or of forms of government. Why, then, does it appear in a resolution passed at what is professedly a political (we do not say a party-political) meeting?

CERTAIN Japanese have more or less settled in California, one of the States which together form the United States of America. California has recently passed laws to prevent these Japanese from becoming full citizens in that State, and consequently in the United States. That is a matter quite within its own province, and the United States, in the person of their President, has failed to persuade California to refrain from such legislation. Consequently, the United States is, willy-nilly, placed in a delicate situation as regards Japan, a country with which they are friendly. The series of events presents to the student a striking illustration of the weakness of those confederations in which the central Government

has only such powers as the Constitution gives to it, the several members of the confederation (States) reserving all such powers as have not been granted away. The central power is not able to fulfil the conditions of treaties with foreign powers, or enter into friendly relations with them, except with the goodwill of every member of the confederation. It reminds one of the anarchy which used to be called Poland.

THE Japanese question in California belongs to a wider range than the technicalities, important as these are, of the United States Constitution. It raises the problem of which Rudyard Kipling gave his solution (?) in the lines:

"Oh, East is East, and West is West,  
And never the twain shall meet."

And the leaders of thought among English-speaking folk have been asking whether the inhabitants of a country which has been admitted to the comity of nations, and recognised as an equal by European States, should not be admitted to the full citizenship of a State which has granted such privileges to African negroes, to say nothing of thousands of fugitives from eastern Europe. Prof. Mahar points to the difficulties of Germany with Poles, of Austria with Slavs, of Canada with French, and of South Africa with Boers, and thinks that the traditions of Eastern nations prevent their mingling satisfactorily with those whose traditions are with the West. Are these arguments conclusive? We cannot tell. This generation may decide one way; the next, with more experience, may decide otherwise.

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## ITEMS OF INTEREST.

### GENERAL.

THE King and Queen entertained 5000 teachers in London schools at a garden-party at Buckingham Palace on July 19th. Invitations were sent to the headmasters and headmistresses of London schools of various grades and to the principals of the university, technical, and training colleges in London. Representatives of the Board of Education, the London County Council educational officials, and the London members of Parliament, whose names are associated with educational work, were also invited. A choir of 500 children, conducted by Dr. Borland, the musical director of the London County Council, sang before the King and Queen and the officers of the Household. The party was a great success, and this gracious recognition by the King and Queen of the importance of the work which is being done in schools of London will be appreciated greatly by all British teachers.

THE Queen, who is joint patron with Queen Alexandra of Bedford College for Women (University of London), opened the new buildings of the College in Regent's Park, London, on July 4th. The new college buildings cover more than an acre. The remainder of the land, about seven acres, is laid out as pleasure grounds, and many tennis-courts have been provided. The college will provide accommodation for 400

students, of whom eighty will be residential. At present there are about 350 students, and it is expected that within a short time the whole of the increased accommodation will be utilised. At the ceremony Lord Rosebery said: "As Chancellor of the University of London I have the pleasing duty of asking your Majesty to accept this key and declare the new buildings open. It would be impossible to over-estimate the encouragement which your Majesty has given to this college by coming here to-day and taking such an interest in every department of our work. And we think we were justified in having invited your Majesty here, as your Majesty is without doubt the titular and cherished head of the women of England. We have another claim upon your Majesty which is more individual and close than that. Your Majesty is one of the only two honorary graduates of the University of London, his Majesty the King being the other." The Queen then said, "I have great pleasure in declaring the new buildings of this college open."

At the meeting of the British Association in Birmingham from September 10th to 17th next, Principal E. H. Griffiths, F.R.S., will preside over Section L (Educational Science). After the presidential address a joint meeting with Section H will discuss "The Educational Use of Museums," in which Dr. Hoyle, of the National Museum of Wales, Mr. Chubb, of the Liverpool Museum, Sir Richard Temple, Prof. Newberry, Dr. Harrison, and others will take part. On the following day a question of national importance is down for discussion, viz., "The Function of the Modern University in the State." The academic heads of several of the universities concerned have promised to speak. Amongst others, Sir Alfred Hopkinson, Sir Harry Reichel, Dr. Hadow, Dr. Alex. Hill, Dr. H. A. L. Fisher, Miss Tuke, Sir James Yoxall, Mr. Alfred Moseley, Sir George Kenrick, and Miss Burstall are expected to take part. Following its custom of recent years, the section, meeting jointly with the Psychological Sub-section, will give a day to the consideration of psychological investigations, so far as they illuminate educational practice. Dr. Kimmins will read a paper on the need for educational research, which will be followed by a discussion, and papers on the psychological processes involved in learning to read and spell will be read. A demand for the registration of schools will be raised by Mrs. Bryant, Bishop Welldon, and Bishop McIntyre, and Mr. P. B. Ballard, Mr. T. S. Usherwood, and Mr. W. F. Fowler will present the case for handwork as a factor in education. Sir George Fordham will read an important paper on the working of the Act of 1902. This paper should provoke considerable interest in view of coming legislation. Among other papers to be read is one on the use of suggestion in discipline and training, by Mrs. Meredith.

THE revised Regulations for the Training of Teachers for Secondary Schools contain two new features of importance, one affecting the training colleges, and the other designed to call into existence a new agency for training. By a modification of the

basis upon which grants to training colleges are calculated, one rather absurd anomaly has been removed. But another remains, for no grant is given unless there are at least ten students, a requirement which not many colleges or departments can at present fulfil. A rule which means that £180 may be paid on ten students, and nothing at all on nine, needs the official mind for its adequate explanation and defence. But a more important feature of these regulations is that an approved secondary school is now recognised as a place of training—for not more than three students. The grants are liberal, the Board believing that this sort of training may especially attract graduates in honours who have not hitherto made use of the colleges. Provision must be made for a course of study in the practice and principles of teaching, and some member of the staff must be "specially qualified," and must have "the necessary leisure," to supervise the teachers in training. The dangers lurking in this scheme are that the training may amount to little more than a probationary year, that it may be lacking in breadth of outlook upon educational problems, that, in short, it may become merely a means of carrying on certain traditions rather than of turning out men and women with minds ever open to new ideas. The scheme needs to be watched, lest it degenerate into a glorified pupil-teacher system. Anyhow, it is evident that the advocates of this kind of training have, for the moment, had their way with the Board.

OF recent years a number of successful schools have been established, both in London and the provinces, providing day courses of instruction for boys and girls, commencing at the age of twelve or thirteen years and extending two or three years. In these schools, while continuing the general education of the pupils, special attention is directed to preparing the boys and girls for some definite industrial employment. The Board of Education, in its recent Regulations for Junior Technical Schools (Cd. 6919), realises that these schools "have now reached a point of development at which they may fairly claim to constitute a distinct educational type, and to require special treatment under the Board's regulations." It is stated that "the schools should normally be planned to provide for pupils leaving the elementary schools, at the age of thirteen or fourteen, courses of instruction extending over two or three years up to the age of about sixteen." The curriculum must be suitable to the circumstances of the locality and the attainments and prospects of the pupils. Practical work of a progressive character will be required in all suitable subjects. Corporate life must be encouraged within the school, and opportunities afforded, where possible, for organised games. No pupil may be admitted unless a certificate is given by his parent or guardian that he is intended to enter for employment for which the school provides a preparation. A very serious weak point in the scheme appears to be that these schools, judging from the prefatory note, will be educational "dead ends." Thus, it is expressly stated they are not to furnish a preparation for higher full-time technical work. No provision is made for definitely linking up the work of these junior schools with the

more advanced instruction given in day or evening technical schools. This isolation of the schools from the general scheme of technical education is opposed to the trend of educational organisation and modern educational thought.

ON July 22nd the President of the Board of Education introduced a one-clause Bill which would enable the Board to give immediate financial relief to local education authorities. He took the opportunity to outline the more comprehensive measure the Government hopes to carry into law next year. The proposals include the following: Non-provided schools must remain for the present part of our educational system. The single school area problem is to be tackled. The compulsory school age is to be raised. Local authorities are to be required to provide "intermediate" education for all who desire it. The liberty, of which the Cockerton judgment to a large extent deprived local education authorities, of providing for higher education in elementary schools, is to be restored. Powers are to be given to the authorities to provide meals for school children on Sundays and holidays. Greater facilities are to be given for providing baths, playing fields, and nursery schools. Advisory provisional councils are to be established to co-ordinate effort and prevent overlapping. Substantial financial assistance for the relief of rates is to be given. As Mr. Pease said, the Government policy is a large and expensive policy, but it is prepared "to foot the Bill."

THE delegates for the Oxford Local Examinations give notice that the Convocation of the University has recently altered the statutes governing the proceedings of the delegacy, and has withdrawn the requirement that every senior, junior, and preliminary candidate shall be examined in religious knowledge, unless objection is duly made; and has discontinued the grant of the title of associate of arts. In 1915 the following local examinations will be held, viz.: in March, higher, senior, junior; in July, higher, senior, junior, preliminary; in December, higher, senior, junior, preliminary. In 1915, too, the limit of age for honours and distinction in the junior examination will be lowered. In 1915 also revised regulations respecting mathematics in the senior, junior, and preliminary examinations will come into force, and Welsh will be added to the list of subjects included in the senior examination.

IN connection with the classes for teachers for the session 1913-14, which the London County Council has organised, six special courses in modern languages have been arranged. Two of these will be given by professors lately appointed to chairs in the University of London as a result of the recent increase in the council's grant-in-aid, while two others will be given by Prof. Herman Levy, of the University of Heidelberg, and Dr. François Simiand, of the University of Paris. In addition, a course on the German novel will be given by Prof. Robertson, of the University of London. These courses, which will be given in French or German, will deal with questions of literary, historical, or economic history, and will be

given, by arrangement with the council, under the auspices of the University of London. A sixth course will be given on the teaching of French by Mr. Hardress O'Grady, of the Goldsmiths' College. The classes and lectures for teachers organised by the London County Council are open, upon payment of a nominal registration fee, to all teachers employed in the County of London. Admission is not restricted to teachers in institutions controlled by the council.

THE London County Council has arranged twenty courses in educational handwork at different centres in the County of London, and a panel of ten lecturers and ten assistant-lecturers has been appointed. In addition to these courses, ten lectures by Mr. W. Fortune Fowler, on handwork in the teaching of geography, has been arranged for next session.

THE London County Council has decided to organise for the session 1913-14 seventeen courses for teachers in music and voice production at different centres in the County of London. These courses include lectures on the teaching of singing by Dr. Borland, the council's musical adviser and inspector, on voice culture by Mr. James Bates, of the Royal Academy of Music, on musical appreciation by Mr. Stewart Macpherson, of the Royal Academy of Music, and on voice production by Dr. Hulbert and Miss Elsie Fogerty. Special courses on eurythmics and phonology are included for the first time. The lectures in phonology will be given by Dr. W. A. Aikin, and will be chiefly concerned with the science of the vocal organs and the sounds they produce. An interesting feature of the classes is a pedagogical course in the teaching of singing, to be given at the Hackney Institute, Dalston Lane. The lecturer will first give a demonstration lesson to a class of children, and one or two of the teachers will then give an experimental lesson on the same subject under the guidance of the lecturer. The classes for teachers conducted by the London County Council are open, on payment of a nominal registration fee, to all teachers who are employed in schools in the County of London, irrespective of whether the schools in which they teach are maintained by the council.

THE Shakespeare summer season, under the direction of Mr. F. R. Benson, at Stratford-on-Avon, offers an attractive programme for teachers and students, not only of the drama, but also of the allied arts of folk-song and folk-dance. Opportunities are also given for lessons in elocution. The theatre programme during the season (August 2nd-30th) includes every species of drama, besides the customary Shakespeare plays for which Mr. Benson is personally responsible. The Lady Isabel Margesson is organising village children's plays. The Norwich players will give "The Drama of Job," the Bedford Players "Glastonbury," and the Dunmow Players "The Tinker's Wedding," by J. M. Synge. The enumeration of these quasi-amateur companies who are to appear side by side with professionals is in itself an indication of the advance that has been made in recent years in the interpretation of drama. Each week will be presented, moreover, "The Harvest Masque," written by Mr.

R. T. Rundle Milliken, and performed by the Stratford townfolk. The circular issued states that "Because of its unconventional form, and from the fact that it seems to be the one literary 'stage-type' created for the amateur, the 'Masque' has been chosen as the best vehicle for such expression." Some 150 people will take part in it. Professional actors will also appear in several modern plays. Special railway facilities and boarding arrangements to suit all purses are made. Intending visitors should apply to Miss Rainbow, Box Office, Stratford-on-Avon, from whom information can be obtained.

A MEETING of secondary-school and technical teachers was held on June 27th, in King Edward's High School for Girls, Birmingham, Mr. Cary Gilson taking the chair. The following resolutions were carried unanimously: (i) That this meeting, representing all classes of secondary- and technical-school teachers, welcomes the prospect of any improvement in the organisation of secondary and technical education, and strongly urges upon his Majesty's Government the absolute necessity for a more liberal scale of salaries than at present prevails in the great majority of secondary schools and technical institutions. This resolution was proposed by Miss Burstall, seconded by Mr. J. C. Isard, chairman of the Incorporated Association of Assistant-masters, and supported by Mr. W. E. Harrison, representing the Association of Teachers in Technical Institutions. (ii) That this meeting is of opinion that no pension scheme for secondary- and technical-school teachers in England and Wales can be considered adequate which does not provide benefits approximately equal to those now secured to Scottish teachers. This resolution was proposed by Mr. A. A. Somerville, representative of the Assistant-masters' Association on the Federal Council of Secondary-school Associations, seconded by Miss Davies, representing the Assistant-mistresses' Association, and supported by Mr. R. H. Hume, representing the Private Schools' Association.

MR. WALTER RIPPMMANN proposes to deliver in the autumn a short course of lectures for modern language teachers. There will be five lectures, from 10.15 to 11.45 a.m., on October 18th, November 1st, 15th, and 29th, and December 13th on phonetics, in which the sounds of English will be made the basis, French and German sounds being compared and contrasted; and five lectures, from 12.15 to 1.15 p.m. on the same days, dealing with methods of modern language teaching. It is intended that the lectures shall be of direct use to teachers in their daily work, and there will be opportunities for the discussion of difficulties. The lectures will be given at Queen's College, 43, Harley Street, W. All communications about these lectures should be addressed to Mr. Rippmann (at 45, Ladbrooke Grove, London, W.).

A MEETING of the London branch of the Association of Science Teachers was held on June 19th at the Southgate County School, when a discussion was opened by Miss Drummond, of the North London Collegiate School, on some points arising out of the answers to the questionnaire on practical examina-

tions. Particulars about the association may be obtained from Mrs. A. R. M. Jewel Pearce, honorary secretary of the London branch, at Dulwich High School.

H.M. OFFICE OF WORKS has granted special facilities for art students desiring to study the arms and armour in the Tower of London. Copies of the regulations dealing with the issue of free tickets of admission to approved students can be obtained from the Curator of the Armouries, Tower of London, E.C.

THE annual report of the Chief Superintendent of Education for New Brunswick has reached us. There are in the province 1,900 schools, 2,000 teachers, and about 65,000 pupils, who form about 18 per cent. of the population. The average salaries of the teachers vary according to the type of school. The first-class men teachers in the "common schools" earn £136 per annum; the first-class women £82; the "superior school" staffs each receive £145, and those in the "grammar schools" £220. Salaries have advanced respectively £35, £19, £32, £29 annually in the last decade. These averages lie between rather wide limits, e.g., the first-class men in the "common schools" may get from £72 to £126, which amounts are below the average; the latter is considerably elevated by the fact that the men teachers in St. John receive as a rule £200 per annum. The discrepancy is not so marked in other cases, for "grammar school" teachers may get from £140 to £320. In view of these salaries it is not a matter for great surprise that teachers are scarce, and that the best teachers are migrating elsewhere. From the Inspector's reports we find cases where schools have an enrolment of fewer than ten pupils; in one case where the number was seven the school was usually closed during the winter, and opened again in April or May, whenever a cheap teacher could be found. These facts indicate the difficulties of educational administration in the outlying parts of the Empire, and we are not astonished to find that the main cause of the trouble lies in the school rate, which is sometimes not collected or is frequently levied on so low a valuation as to provide insufficient funds for efficient teaching.

"HOWLERS" are not confined to the British examination system. In the recent examinations for pupil-teachers in the Cape of Good Hope Province, the paper in geography asked for particulars regarding Ulster. The examiners report: "Most candidates associated that name with the Home Rule movement, but many thought that Ulster was in favour of Home Rule—was, in fact, fighting for it under Lord Curzon (in three cases); and in one case a description of a battle at a football match was given in which twenty were killed and 200 wounded!" In reference to a question in the paper on English one candidate wrote: "The children shall be insisted on to speak and write correctly."

MESSRS. W. AND G. FOYLE have opened, adjacent to their premises in Charing Cross Road, London, a foreign book department, in which may be found books in every language on every conceivable subject arranged in classified order.

## SCOTTISH.

A REPRESENTATIVE deputation from the Scottish School Boards Association waited upon the Secretary for Scotland, and laid before him their views with regard to the increased financial burdens that would fall upon the education authorities through the operations of three Bills now before Parliament—the Mental Deficiency Bill, the Medical Treatment (Scotland) Bill, and the Employment of Children Bill. The Rev. Dr. Smith, Partick, in presenting the case for the deputationists, said that they were in entire sympathy with the objects aimed at by these Bills, but they placed greatly increased financial burdens upon them, and they were satisfied that, unless the Treasury was prepared to give additional grants, there would be a popular uprising against the expenditure on education. The Secretary for Scotland (Mr. MacKinnon Wood), said that he had much sympathy with the views expressed, and he had made strong representations to the Treasury as to the need for additional assistance, and he did not see how his demands could well be refused seeing that England had already obtained a substantial addition to her grants for those who were mentally deficient. In regard to the medical treatment of school children, the Treasury was prepared to spend pound for pound with the local authority for this purpose. As the Children's Bill was not likely to be proceeded with this session, he did not think it necessary to consider further its financial operations.

THE report of the director of studies to the Glasgow Provincial Committee shows that the number of students in training is 1038, being twenty-two fewer than last year, and 255 fewer than two years ago. Of these, 253 were taking a concurrent university and training college course. The number of students in training for the work of secondary education was twenty-five, as against twenty-two the previous year. These numbers were quite inadequate to meet the annual wastage in the staff of secondary schools, and some means should be taken to attract a greater number of candidates to the higher ranks of the profession. The first and most obvious thing to do was to improve the conditions of service and to increase the salaries of all engaged in secondary schools.

MR. HUGH M'CALLUM, president of the Educational Institute, in an address to the teachers of Forfarshire, said that the policy of centralising secondary education did not meet with general approval. Equality of opportunity must be the ideal of every enlightened educationist, but in many cases this had not been realised because the centralisation of secondary education had placed it beyond the reach of many talented pupils whose parents were unable to bear the cost of maintaining their children at these centres. To secure an approximate equality of opportunity for all, three things were necessary. There must in the first place be a relaxation of the requirements for the Intermediate certificates so as to permit of greater variety in the curriculum. Secondly, there must be more money from the Exchequer, and there must be, in the third place, enlarged areas of educational administration in order that the strong and wealthy should come to the relief of the poor and sparsely

populated district, and also that the avenues to promotion for capable teachers might be increased and broadened.

THE dispute between the University Court of St. Andrews and the council of University College, Dundee, in regard to the collection and distribution of class fees paid by students attending Dundee College has happily been settled without having resort to litigation as at one time seemed inevitable. The terms of settlement practically leave in the hands of the council the entire transaction of financial business connected with University College, but subject to the sanction of the University Court in so far as concerns the regular expenditure upon the qualifying classes. A standing joint committee of four representatives from each body has been appointed to advise and consult as to points of common interest. This agreement practically maintains the *status quo*, while making some slight concessions to the claim of the University Court to be the predominant partner in the combine.

THE General Council of Edinburgh University held a special meeting to consider the proposals by the University Courts for the new preliminary examinations. After full discussion, the council by a majority disapproved of the recommendation to set up new machinery for conducting these examinations. The chief reason advanced for this decision was that the proposal perpetuated the system of purely external examinations, and was a direct incentive to narrow preparation and cramming. The council recommended that the preliminary examination of the University should be merged in the leaving certificate examinations of the Scotch Education Department, provided that body was prepared to set up a board representative of all educational interests to control the examinations. The council also by a small majority disapproved of the regulation which made Latin a compulsory subject for all entrants to the University. If the new ordinances endorse this finding, it is safe to affirm that Latin will speedily follow Greek into the region of lost causes. In a new and very real sense they will be entitled to the name of "dead languages."

## IRISH.

"THE £40,000 grant is in peril." So Mr. Birrell, in answer to a question in the House of Commons, although he is still hopeful to be able very soon to inform the House that a satisfactory arrangement has been come to whereby this considerable sum of money has been secured for Irish Intermediate education. The only body which has raised objections to the Birrell scheme for allocating this grant is the Catholic Headmasters' Association. It is, of course, an important body, and with it Mr. Birrell has been negotiating all the winter and spring. A veil of mystery has obscured the proceedings, and all the information granted has consisted in Mr. Birrell's optimistic statements that he expected soon to have come to some arrangement, and meanwhile he deprecated discussion. The association has vouchsafed no information. But instead of a settlement a deadlock has come, and the correspondence is to be published,



and may perhaps have been published in a White Paper before these notes appear. And what then? Does Mr. Birrell propose to cut the Gordian knot in heroic fashion, or what? The grant cannot be allowed to lapse, for, as everyone knows, as Mr. Birrell has stated, and as the House of Commons has agreed, it is absolutely necessary to Intermediate education, and its withdrawal would be a scandal.

UNTIL the White Paper appears, the main clue to the Roman Catholic objection is to be found in the speech made by Dr. O'Dwyer, the Bishop of Limerick, in delivering the prizes to the pupils of the Laurel Hill Convent School. He does not object to examination or inspection, but he objects to any condition that part of the teaching in Catholic schools must be given by lay teachers. Mr. Birrell requires one layman for every forty pupils. Later the proportion might be raised to one in twenty, and perhaps the Government will insist on having lay headmasters. And the Bishop sees introduced into Ireland the conditions which prevail in France. The independence of Irish schools must be guarded at any cost, at the cost of absolute poverty, if necessary, and is not to be purchased with the paltry bribe of £40,000 a year. He suggests that, if the Intermediate system is to be altered radically, it should be done above-board by an Act of Parliament by a Bill which could be brought to the test of open discussion, and not by mere administrative acts. Finally, he will not be sorry if the negotiations break down, as, in his opinion, the scheme is ill-conceived.

A BILL for a radical alteration in the Intermediate system is now before Parliament. It is the same Bill as was introduced last session, and involves payment of grants partly on inspection and partly on examination. It was not received then with any great cordiality, and in the absence of general consent, Mr. Birrell holds out no hopes of proceeding with it at present.

THE reforms in the Intermediate system suggested by the Commissioners of Intermediate Education are outlined in their annual report which has just been laid before Parliament. It starts with two conditions: (i) The abolition of the restriction which makes the school grant entirely depend upon examinations, and (ii) the adoption of a system whereby examination and inspection should each have a share in determining the grant. The Commissioners put forward as their solution that the school grant should be a capitation grant, paid to schools which satisfy the required conditions, on all pupils between the ages of twelve and nineteen years, who have been in regular attendance during the year. To obtain grants the schools should be certified as efficient by the inspectors of the Board, a reasonable proportion of the pupils should pass certificate examinations, and the teachers should possess qualifications to be approved by the Board. The capitation grant should be greater for students between the ages of sixteen and nineteen than for those under sixteen, and a bonus grant might be paid to schools of more than average efficiency, as shown either by a high proportion of passes in the certificate

examinations or by a high proportion of successes in the honour examinations.

THE University College, Dublin, announces vacation courses for August. This is in continuation of the policy of the past two years, and is on a larger scale this year on account of the success of the courses last summer. They are intended specially for those who are engaged in secondary education. The courses will begin on August 5th, the inaugural lecture being delivered on the evening of August 4th by Prof. Magennis. There will be morning and evening lectures daily until the 16th, and there will be seven courses: (i) on education, especially dealing with English literature and composition and modern history, by Prof. Corcoran; (ii) on Irish archæology, by Prof. Macalister; (iii) on classical archæology, by Prof. Browne, assisted by Mr. D. J. Finn, principally intended to familiarise classical teachers with the use of *Realien* in teaching the history and antiquities of Greece and Rome; (iv) on English, by Prof. O'Neill, Prof. Donovan, and Mr. M'Donagh; (v) on Old Irish, by Prof. Bergin; (vi) on geology, by Prof. Seymour; and (vii) on æsthetics, by Profs. Magennis, Scott, and Browne. These courses are free, and tickets of admission may be obtained on application to the secretary of University College.

THE Viceregal Commission of Inquiry into the system of National Education will, after all, have the views of the primary teachers laid before it. The Irish National Teachers' Organisation has withdrawn its self-denying ordinance, and in view of some statements made by the Commissioners of Education in the first volume of evidence published, it has decided that teachers should appear before the Commission and give rebutting evidence. This is no doubt a wise course, but it will probably mean much prolongation of the labours of the Commission.

#### WELSH.

In a circular of the Welsh Department of the Board of Education it is pointed out that the difficulty of obtaining an adequate supply of teachers has become more acute since 1909. The number of bursars and of pupil-teachers in their first year recognised in Wales (including Monmouthshire) was 940 in 1907-8; in 1909-10 it was 768, and it has fallen in 1912-13 to 609. Without entering into detailed calculations, the circular continues, "it may be taken as beyond question that the position with regard to the supply of teachers, not only for the immediate future, but also for a good number of years to come, is extremely serious. Exceptional difficulty in staffing in any schools during the next few years is now inevitable. Unless the number of entrants to the profession can be increased largely, and without delay, it will be impracticable in many areas to maintain the staffs of public elementary schools at even their existing strength or quality, and the Board and local authorities must abandon for many years to come any hope of further reducing the size of classes, or of increasing materially the proportion of certificated teachers—reforms on which a general improvement in the

efficiency of elementary education must mainly depend."

ADDRESSING itself to the question of securing a supply of suitable candidates for the teaching profession, the Board suggests a modification of their regulations for the preliminary education of elementary-school teachers. The amendments include provision of increased maintenance allowances for intending bursars in secondary schools, the strengthening and improvement of the pupil-teacher system in rural districts, and the provision of some assistance for systems of educating intending teachers, at present outside of the existing regulations. As to maintenance allowance, the Board propose to take account of all sums allowed to a bursar during the whole period of full-time attendance at a secondary school, and to contribute to such allowances on the basis of one-half of the sum paid for this purpose by the authority, with a maximum of £15, paid only in respect of bursars on whom the principal grant is paid.

WITH regard to pupil-teachers, recognition will be given, if desired, from the age of fourteen, and may extend to four years. The head-teacher is to receive a grant of half the amount paid by the authority for the pupil-teacher's instruction, but not to exceed £4 from the Board, but the Board may give up to £4 more, in aid of the authority's expenditure on instruction supplementary to that of the head-teacher, and a principal grant of £10 payable on each pupil-teacher who becomes qualified for admission to a training college, or for recognition as an uncertificated teacher.

MR. RUNCIMAN, President of the Board of Agriculture, formally opened the farm school established at Madryn Castle by the Carnarvonshire Education Authority. This is the first farm school thus founded in Wales. The Board makes a contribution up to 75 per cent. of the initial cost in providing buildings and suitable equipment for farm schools, together with an annual sum up to 50 per cent. towards the total cost of maintenance. It is proposed to organise four distinct courses, viz., a course in dairying and poultry farming for young women, two summer courses for elementary-school teachers, a winter agricultural course for farmers, and a course in horticulture. The winter course for farmers will extend over a period of five months.

THE report of the Board of Education under the Welsh Intermediate Education Act of 1889 has many points of interest. We can only give a few extracts. "The whole examination system should be reconsidered, especially when it is remembered that the actual examinations take three weeks of the time of the school; that a girl of sixteen or seventeen may be examined for more than forty hours in order to get honours, a time longer than the time a man preparing for a final degree with honours at Oxford is under examination; and that the results of the examination of a school during one session cannot always be published before the beginning of the following session."

THE report states that while some changes in the system of examination and inspection may be necessary, the future of secondary education is as promising as ever. The Welsh belief in education is not less because of a slight decrease in the number of pupils in the Intermediate schools. School libraries have been improved and class libraries formed. School dinners have been established. There is still need for close attention to the behaviour of school children when travelling. History, it is stated, "can only be taught by modern methods at the certain cost of poor examination results." "The most striking instance of success is the introduction of the new method of teaching geography." "It might be well to point out that some of the class-rooms might be equipped with tables instead of desks." "Attention is directed to the study of local, and especially of Welsh, history; but the importance of the economic interpretation of history and the explanation of the growth of modern institutions has not been felt."

WITH regard to Welsh, the report tells us: "In too many schools, where Welsh is taught to children who cannot speak it, there is a great contrast between the bright teaching of French on modern lines and the dreary teaching of Welsh on ancient lines; in the one case interest is aroused by pictures and vivacious talking, in the other it is killed by a paradigm of initial mutations and a selection of irregular forms."

#### EDUCATION EX CATHEDRA.

- (1) *The Tragedy of Education.* By E. Holmes. 100 pp. (Constable.) 2s. 6d. net.
  - (2) *The Demonstration School Record.* No. II. Edited by J. J. Findlay. 283 pp. (Manchester University Press.) 5s. net.
  - (3) *Everyday Problems in Teaching.* By M. V. O'Shea. 388+xliv pp. (Longmans.) 4s. 6d. net.
  - (4) *Human Behaviour: A First Book in Psychology for Teachers.* By S. S. Colvin and W. C. Bagley. 336 pp. (Macmillan.) 4s. 6d. net.
  - (5) *Child Mind.* By B. Dumville. 214 pp. (Clive.) 2s. 6d.
  - (6) *Children's Play and its Place in Education.* By W. Wood. 218 pp. (Kegan Paul.) 3s. 6d. net.
  - (7) *Handwork and its Place in Early Education.* By L. L. Plaisted. 327 pp. (Clarendon Press.) 4s. net.
  - (8) *The Service of the Hand in the School.* By W. A. Bone. 212 pp. (Longmans.) 3s. net.
  - (9) *Vives: On Education.* Translated and edited by Foster Watson. 328 pp. (Cambridge University Press.) 5s. net.
  - (10) *Text-book in the History of Modern Elementary Education.* By S. C. Parker. 505 pp. (Ginn.) 6s. 6d.
  - (11) *The Posture of School Children.* By Jessie H. Bancroft. 327 pp. (Macmillan.)
- (1) IN what sense is the drama of education a tragedy? In the sense, says Mr. Holmes, in his latest volume, that the leading actors, who may be well-meaning and innocent, bring great calamities on themselves and others—calamities so great that the immediate authors of them may be pardoned for ascribing them to Fate or Destiny, of which they regard themselves as the almost irresponsible instruments. The calamities he means are such as "perverted ideals, debased standards, contracted horizons,

externalised aims, weakened will-power, restricted and distorted growth." Mr. Holmes has no special quarrel with teachers, whom he regards as scarcely more responsible for the failure of education than the Army and Navy are responsible for the horrors of war. The cause of the tragedy lies in that "dogmatic pressure" which compels the most modest of teachers to say to the child by implication, "I am your ideal, and you are to model yourself, or rather I will model you, on me," which dams back the child's natural energies, and calls the result "order and discipline," which imposes the examination system, and thereby compels child and teacher to care more for show than for reality.

The remedy lies in the substitution of freedom for dogmatic pressure. But, says the writer, in a needed qualification which we are glad to read, "to give freedom suddenly and in full measure to children who have been kept for years under strict control, is to court disaster." We are glad also to find Mr. Holmes confessing that his chapter on "the malady" contains "many sweeping statements which need to be liberally discounted. They are statements of tendency only, and do not pretend to be literally true." We think that Mr. Holmes's conception of the Montessori system as a new discovery will be shared chiefly by those who, like the American lady he refers to, have "been taught to believe in the original sinfulness and the original stupidity of the child." But so many relics of this belief still linger in the minds of parents, teachers, and officials, that the author of this book has a real message for our time.

(2) After an interval of five years comes the second volume of the "Demonstration School Record," in which are described the pursuits of the Fielden School, in connection with the Department of Education in the University of Manchester. The volume is edited by Prof. Findlay, who contributes introductory chapters on the corporate life of the school, on work and the motives for working, and on the school curriculum considered as a whole. Then follows in twelve chapters a fairly complete account, by various members of the school staff, of the aims adopted and the methods employed in dealing with each branch of the curriculum, the ages of the scholars ranging from four to fifteen. These chapters will furnish the inquiring and progressive teacher with abundant food for thought, and they should have a stimulating effect upon other training departments and colleges, where perhaps not so much use is made of the demonstration school. An interesting appendix gives a record of three months' work in the kindergarten on Montessori lines.

(3) As is suggested by the title, the leading feature of Prof. O'Shea's new volume is that each of the problems discussed arises out of some actual school-room situation which the author has witnessed, and from the description of which he passes to the educational principles involved. "In respect to style," says the writer, "it has seemed to me desirable to use rather simple sentences for the most part. When one is elaborating theory without regard to immediate application, complex sentential construction will serve his purpose best. But when one is aiming to interest the practical teacher, his sentences will probably have the best effect if they are not very intricate." This seems to us terrible linguistic doctrine, and we feel moved to express our satisfaction that, this time at least, the professor does not let himself go in "complex sentential" fashion. On the contrary, the selected topics are discussed simply, and on that account the more effectively. The fifty pages of suggestive "exercises and problems," with which the book closes, should alone secure for it a welcome in places where teachers are trained.

(4) Some time ago we noticed favourably in these columns Prof. McDougall's little volume on psychology considered as what it really is or should be, "the study of behaviour"; and now we welcome "A First Book of Psychology for Teachers," written from the same point of view, under the title, "Human Behaviour." The authors, two American professors, are already very well known and respected in England, and this work will certainly not detract from their reputation. For the essentially conative nature of mental process which is here insisted on, and upon which recent psychology has laid stress, is true to the facts of human life, and it is for this reason that psychology is beginning to be more valued by teachers than used to be the case. In their choice of topics, the writers have been guided by their obviously close acquaintance with the requirements of the young teacher. The "questions and exercises" appended to each chapter have been constructed chiefly for the purpose of encouraging the student to study behaviour in the concrete, and especially to observe the factors that operate in determining his own conduct.

(5) Last year Mr. Dumville published a treatise on psychology for teachers, and now, at a few months' interval, he comes into the field again with a shorter but somewhat similar book on "Child Mind." Mr. Dumville is obviously well informed on his subject, he writes clearly, and selects his topics with judgment. He directs the reader to more advanced works, and he appends to each chapter a set of questions for further consideration. We are not inclined to dispute the claims somewhat naively made in the preface that "the book should prove specially helpful in training colleges," and that it "will be found to give a clear account of the nature and development of child mind, so far as it is understood."

(6) So much practical and beneficent interest in children's play is being shown at the present time, not only in kindergartens, but also in the education of older children, that a simple treatment of the theory and history of the subject should receive a welcome. Such a treatment is provided in Mr. Wood's unpretentious little volume, entitled "Children's Play." The psychology of play, the various theories of its origin, and its place in modern education are here presented in untechnical and popular form. The book is to be commended to teachers, especially of young children, as well as to persons interested in play centres.

(7) Miss L. L. Plaisted's new book on handwork is intended directly for teachers of young children, though some of its chapters contain material and illustrations which should be suggestive for lower and middle forms, where handwork is taught. The writer regards Froebel's "gifts and occupations" as "a suggestive basis"—an opinion in which many of her readers will not concur. Most of the chapters deal with the manipulation of the several kinds of handwork media—paper, cardboard, wood, clay, &c. Here, again, many will be disposed to contend that the uses to which handwork is put, rather than the media employed, are the prime consideration. Still, this difference of view will not prevent them from making good use of the book. The chapters on handwork in connection with history and with geography are well worth attention.

(8) "The Service of the Hand in the School" is an obviously sincere and a most interesting record of work actually done in the training department of Sheffield University, under the direction of Miss W. A. Bone. First, we have three brief but sufficient chapters on the general position of handwork in education. Then follow several chapters in which sound practical advice is given on such matters as schemes of work, toys, decorative work, social service and group work,

and primitive industries. The book is very suggestive, it is well illustrated, and we think it contains the root of the matter. We hope it will have a good sale.

(9) In his "Vives on Education," consisting of a translation of the "De Tradendis Disciplinis" of Juan Luis Vives, together with an exhaustive introduction, Dr. Watson continues his really heroic task of rescuing from oblivion, and setting before the English reader, the work of the great educators of the sixteenth and seventeenth centuries. "Was Vives a greater thinker on educational matters than Erasmus?" Most people would content themselves by pointing to the fame of the latter as proof of his superior position. But Dr. Watson is not so sure, and in this scholarly volume he provides the interested reader with materials for forming an unprejudiced opinion.

(10) The purpose of Mr. S. C. Parker's "History of Modern Elementary Education" is to trace the development of elementary education in western Europe and the United States. He first gives a brief review of the Middle Ages, and then deals in succession with "elementary schools on a religious basis," the "transition to the secular basis for elementary education," and "secularised elementary education." Luther and Calvin are leading figures in the first of these divisions, Comenius, Locke, and Rousseau of the second, Pestalozzi and Froebel of the third. The author designedly limits himself to elementary education, and to typical movements and institutions, in preference to a "sketchy encyclopædism." In this we think he is right. Our only doubt is whether, since education proceeds so much on national lines, anything is gained by mingling the accounts of education in different countries, even so much as the author has done, especially if the student's knowledge of general history is slight. The volume is enriched by a large number of illustrations.

(11) An extensive treatise on "The Posture of School Children" is, so far as we are aware, something of a novelty, though, of course, there is much material on the subject in educational and medical journals, as is shown in the bibliography appended to this work. The work is intended to aid both home and school. "How many parents," asks the author, "know that a broad, flat chest is the proper type of development after the deep chest of very young childhood? or that the typical collapsed chest of the consumptive has, in most cases, too great a proportionate depth? or that to train a child to 'turn his toes out' is to invite fallen arches and flat-foot?" It is to spread the light on matters like these that this exhaustive and well illustrated book has been written.

## THE APOTHEOSIS OF PRACTICAL MATHEMATICS.

*Elementary Practical Mathematics.* By Prof. John Perry. xiv+335 pp. (Macmillan.) 6s.

It cannot be denied that Prof. Perry's vigorous attacks upon traditional methods of mathematical teaching have produced some beneficial results. What may be termed the classical school of mathematical teachers paid too little regard to the practical needs of those who were to take a part in modern industrial life, and Prof. Perry has rendered a great service to such students by demanding, and to a large extent obtaining, the adoption of courses of instruction better adapted to their requirements. Prof. Perry is probably right in saying that the classical, or, as he terms them, academic methods, succeed with only about 5 per cent. of our boys, but we think he is doing the other 95 per cent. an injustice when he says they are incapable of abstract thought.

In the work before us Prof. Perry states his considered views on the sort of teaching suitable for the latter class of students, and we believe we are correct in saying that what he advocates is a kind of experimental work, involving the accumulation of facts and formulæ, the study of the logical connections between the latter being to a great extent omitted. There is, however, some difficulty in reconciling Prof. Perry's doctrines with each other and with his practice. On one hand he says "the average boy is incapable of abstract thought." "Do not teach abstract geometry at all." "A boy who is expected to know the reasons for the rules he uses (in arithmetic) is introduced to complex logic far beyond his powers." On the other hand, we read: "Our methods of reasoning are the logical methods adopted in physics and in common affairs." The concept of a limit is a fairly abstract one, yet it is explained (and not at all badly) in the chapter on the calculus.

Moreover, the maxim that acquaintance with objects should precede reasoning about them is continually violated in the examples. Did the teachers who attended Prof. Perry's lectures know all about Diesel engines, dynamos, &c.? We must further confess that we have not much faith in the new royal road to mathematics. "All rules ought to be compactly stated as formulæ." "When a student knows that he can evaluate any formula, he will find mathematics an easy study." "The most important thing is for a student, when he gets a problem to work, to be able to refer at once to some book in which the rules are clearly stated." In other words, the practical mathematician's memory is to make up for the defects of his reasoning powers.

To turn to a few points of detail. We are told that "it is *dishonest* when calculating from observed quantities to use more figures than the data permit," and one ought to use contracted methods. There is no need so to do. They are tiresome and antiquated, and a very fruitful source of error. Use logarithms or calculating machines, and retain the proper number of figures at the end. Incidentally we notice that several of the answers given to the examples are "dishonest." For example, the data in Ex. 80, p. 211, contain four significant figures, and some of the results five.

We did not know that the binomial expansion was equal to  $(x+a)^n$  for all values of  $x$ ,  $a$ , and  $n$  (p. 40). Prof. Perry concedes to Mr. Edser two days' priority in the invention of the method of calculating logarithms described on p. 86. It was published by Henry Briggs in his "Arithmetica Logarithmica" in 1624.

Finally, we can assure Prof. Perry that the "good mathematician" knows of such a thing as the weighting of least square equations, and the results he obtains are probably as trustworthy as those obtained with a black thread (p. 180). The "wooden-headed, cock-sure, academic persons" perhaps know their business a little better than Prof. Perry will allow his students to believe.

*The Girls' School Year Book (Public Schools)*, 1913. xxix+660 pp. (Year Book Press.) 3s. 6d. net.—The present is the eighth issue of this useful annual work of reference. It maintains the excellence and trustworthiness of previous editions; it should be very helpful to parents deciding either where to send their girls to school or what to do with their daughters after schooldays are over, and also save school-mistresses much unnecessary searching for facts and figures in connection with examinations and other educational work.

## AN INSTRUCTIVE HISTORICAL ANALOGY.

*Greater Rome and Greater Britain.* By Sir C. P. Lucas, K.C.B., K.C.M.G. 184 pp. (Clarendon Press.) 3s. 6d. net.

THIS is one of a useful class of books, where the history of the past is made to give lessons for the present. There is no doubt danger in such analogies; but many political expedients which are preached from time to time as novelties have already been tried, and their success or failure often depends on principles, not on accidents. Gracchus is enough to show us that sentiment and good intentions are not enough to make a statesman. Sir C. P. Lucas is aware of the differences which add new difficulties to our lot, although they annul some of the old ones; and his examination is critical. He examines the effect on empire of space and distance; distance makes nationality, and also gives scope for a man's personal power, but distance is being done away or counteracted, so that it becomes possible to form one nation of many communities widely scattered. Yet most of the constituent communities have already, by reason of distance, taken a character of their own which will persist. On the other hand, parliamentary meddling becomes easier, and the real men may be thwarted by the puppets of the ballot-box.

The author sees continuity in Roman colonial policy, fickleness in ours; strength in one, weakness in the other. Nothing but education and a training in self-control can counteract this modern fault. The colour problem is new; Rome has nothing parallel to it; and it comes largely from knowledge, since the Englishman learns that the coloured races are as a rule not fitted to rule or to be just. They have, like women, certain natural deficiencies. And the tie of class runs across the tie of citizenship; a labour politician thinks of an Indian as a rival, not as a fellow-citizen; and it is a problem of the future, whether the labour interest will become cosmopolitan and destroy or overrule national feeling. The American continent gives a crucial example of this difficulty. Sir C. P. Lucas does a real service in insisting on the importance of appearances, and the value of the monarchical principle; he also hints at the necessity for an imperial tariff, although he has tried to avoid controversial politics. Still, this topic is one that is forced upon the notice of all real students of history, and only partisan feeling can make men blind to it. The question will probably be, as he points out, Will you keep the dominions and pay their price, imperial preference, or will you refuse the price and lose the dominions? We are glad to see also that the author knows, and says clearly, that there must be the strong hand behind all our imperial schemes.

This is a valuable book, and we wish it might be presented to all members of Parliament, together with the intelligence to understand it and the will to learn from the wiser.

## RECENT SCHOOL BOOKS AND APPARATUS.

## Modern Languages.

*A Phonetic Dictionary of the English Language.* By H. Michaelis and D. Jones. xxiv+447 pp. (Hachette.) In paper cover, 6s.; bound, 7s.—The French Phonetic Dictionary, by Michaelis and Passy, is well known as a valuable book of reference. The present volume shows a similar arrangement; the phonetic form is given first, followed by the conventional spelling. (Mr. Jones is engaged in preparing a pronouncing dictionary in which the conven-

tional spelling is given first.) A phonetic dictionary such as the present volume is of use to those who have some knowledge of the spoken language, and has its value in emphasising the importance of the sounds of English speech, rather than their very unsatisfactory written representation. So far as we have been able to test it, the transcription records the sounds of educated southern English speech with commendable accuracy; it is scarcely necessary to add that the alphabet used is that of the International Phonetic Association. The introduction gives a useful summary of the main facts about English sounds. To the growing number of those who are interested in English phonetics this volume will prove of absorbing interest.

*Les Aventures de Maître Renard.* Edited by Marc Ceppi. vii+88 pp. (Arnold.) 1s.—It was a happy thought to select some of the brightest stories of Reynard the Fox, and to rewrite them in modern French. Mr. Ceppi has been careful to choose simple words, but has unfortunately thought it necessary to add a French-English vocabulary, which will detract from the usefulness of the book in the eyes of reform teachers. The text is carefully and clearly printed, and there are a dozen well-drawn pictures. Perhaps Mr. Ceppi may be persuaded to issue an alternative edition with reform exercises in place of the vocabulary.

*A Rudimentary French Composition Book.* By Clara A. Fairgrieve. 83 pp. (Harrap.) 1s.—Is there any demand for a French composition book "for the use of beginners," "adapted to the limited intellectual powers of children at this early age"? We had hoped that it had been realised that early translation from the mother-tongue was as bad for the child as early smoking; but it seems that the gospel of the reform has not penetrated everywhere, and if teachers want this kind of thing, then this little book is the very thing they want. Anecdotes in French, followed by the same story told in English, then simple bits of English only, all supplied with most copious renderings—everything, in fact, for producing mosaic work, or, as others might be tempted to say, a jig-saw puzzle. It is all very pretty, but is it art?

## Classics.

*Proceedings of the Classical Association, January, 1913.* With Notes and List of Members. 216 pp. (Murray.) 2s. 6d. net.—Among the records of debate, which have only a passing interest, and official information, there are sandwiched several papers of interest. The master of Trinity discourses with his usual felicity on the teaching of Latin and Greek verse and the value of translations from the classics. A charming little anthology of good things is contained in the second part of his address, but he does not add, as he might have done, that the originals touch the heart closer. This is certainly true of all poetry, and also of all prose, where the story contains beauties of language and association as well as moving events or characters; that is to say, of all the authors he quotes. Canon Cruickshank puts in a plea for Ovid as an artist; he makes a good point in saying: "Sometimes we wish that he had been inspired by a great hatred; it would perhaps have converted the spoilt child of genius into a man"; and he cites Dryden and Pope as examples. Prof. Roberts on simplicity and variety of style is full of sound matter; but what a pity that he did not print his English examples in full! Nobody will look them up. Prof. Summers on Declamations directs attention to a much-neglected side of ancient literature. Not least striking of the papers is one by Father

Ailinger, of Bombay, recommending Latin as a *lingua franca* instead of the Esperantist brood. May his wish be fulfilled!

*Rama and Homer. An Argument that in Indian Epics Homer found the Theme of his Two Great Poems.* By Arthur Lillie (late Regiment of Lucknow). xvi+284 pp. (Kegan Paul.) 5s. net.—The author of this book has found a number of parallels between the Greek and Indian epics, but he does not show a very critical spirit. Such episodes as the theft of a bride in a husband's absence, a muster-roll of forces, heavy fighting on foot, are too natural to prove borrowing. In some cases Mr. Lillie is wrong. The Greeks in the Iliad were not banished from Argos; the use of Homeric chariots is well known—it was to convey the heroes to and from the fight. Other points are the common stuff of folk-tales. Monier Williams long ago saw many of these resemblances, but he thought there was no evidence of borrowing either way. We direct attention, however, to this book, because it may give classical scholars something new to think of, and the differences of treatment, of tone, of character, as shown by a comparison of the poems, are most instructive as to the characters of the two races.

*Fragmenta tragica papyracea nuper reperta.* Recognovit brevique adnotatione critica instruxit A. S. Hunt. Bibliotheca Scriptorum Classicorum Oxoniensis. Paper, 2s. 6d.; cloth, 3s.—This is a reprint of the Ichneutae, Eurypylus, and Archaion Syllogos of Sophocles, the Hypsipyle, Orestes, and Melanippe of Euripides, and a satyric fragment, as found in the papyri, with notes taken from the critical work of scholars on these pieces. Although short, they are all worth reading, and the first in particular is important, for it gives enough to show that the touch of Sophocles in the satyric drama was as sure as in tragedy. The book was well worth making, and it is edited with Dr. Hunt's unrivalled skill.

#### English.

*Titus Andronicus and Pericles.* 2 vols. (The Tudor Shakespeare.) (New York: The Macmillan Co.) 1s. each.—This admirable pocket edition of the plays now draws near completion. We have not noticed the volumes as they appeared, but have reserved comment until now. They are in cloth and contain introductions, glossaries, and a few pages of v.l.l. Each volume is by a well-known American professor, and the whole series is under the general editorship of Dr. W. A. Neilson, of Harvard, and Dr. A. H. Thorndike, of Columbia University. "Lear," "As You Like It," and two of the historical plays are edited by women. The introductions follow a plan so that anyone who possesses the series can at a glance compare what the editors have to say on (a) text, (b) date, (c) authorship and style, (d) stage history. The introductions are brief but outspoken, and they appear to contain all that is necessary, including a modern view of the various plays. This last, in days when even Shakespeare's throne is not unclapped by the waves, is very important. The print is admirable, and each volume contains an illustration bearing on Shakespeare. It is greatly to be hoped, though no mention is made of it, that the general editors have in view a companion to the Tudor Shakespeare, in which the history of Shakespeare appreciation, an account of the text, and a review of the many Shakespeare questions which have arisen in the last ten years would find a place. American critics have done so much for Shakespeare, and we are all under so great a debt to America in matters to do with all English literature, that this "companion" would, we feel sure, be welcomed.

*The Boy's Froissart.* By M. Edgar. (Harrap.) 1s. 6d.

*A Hero of Old France (the Song of Roland).* By J. H. Cox. (Harrap.) 9d.

Who shall say that the age of chivalry is dead? At any rate, here is Roland and his olifant Englished out of the old texts, and Froissart in Lord Berners' words, and both of them illustrated, cheap, well printed, for the school library. Froissart must be taken with additions if he is to count as history; but even without the additions he is not so misleading as Shakespeare. Roland is frank legend, and is accepted as such; but he is, basally, Christendom pitted against Mahoun. The introductions to both books are all too short, and, to our thinking, on wrong lines. They should suggest comparisons.

*Specimens of Scottish Literature, 1325-1835.* By W. M. Metcalfe. 227 pp. (Blackie.) 2s. 6d.—Dr. Metcalfe is well known for his Scottish legends of the saints, and for his dictionary, and this book, intended for use in Scotland, should be useful wherever historical English is studied, for Scots is nothing but English, just as Zummerzet is. The outline of grammatical forms is too brief, and would be improved by a host of quotations; but nearly half the volume is devoted to necessary notes and glossary. We should have liked a ballad or two more, and a specimen of Gavin Douglas's translation.

#### History.

*The History Teacher's Magazine, April to June, 1913.* (Philadelphia, U.S.A.) 20 cents a copy; 2 dollars a year.—The American *History Teacher's Magazine* for the three months under review contains some interesting and valuable features. First should be mentioned a ten-page section in the June issue giving names and addresses of the principal dealers in America, Britain, France, and Germany from whom "illustrative material for history classes" can be obtained. Under each entry is stated the kind of illustrative material—maps, plans, views, prints, lantern slides, and so on—which the firm in question supplies. This list should be of permanent value to the teacher who is engaged in fitting up a history room at his school or college. The April number prints an amusing feminist tirade by Gertrude White Carrick, entitled "The Place of Woman in School Histories." Her place apparently is not more prominent than is the place of snakes in Iceland. "Open Barnes, Montgomery, Channing, Fiske, or McMaster's text-books of United States history, and try to find the records of events in which woman has taken part," cries Miss Carrick. There is nothing about them. In vain will you look for a report of the glorious achievements of Lucretia Mott, Mary Livermore, Clara Barton, Susan B. Anthony, Dorothea Dix, Belya Lockwood, and a score of others equally worthy of renown. We await with interest Miss Carrick's text-book of American history in which these heroines will occupy the centre of the stage. The May number is enriched by a notable article by Moses W. Ware, of Princetown, on the American Colonies under the Whig supremacy, in which the relations of the Colonies to England are traced from 1688 to 1760. Apart from these special features the three numbers before us present the usual useful summaries of current events, reviews of books, outline lessons, and suggestions for teachers.

*The Papacy and Modern Times.* By W. Barry. 256 pp. (Williams and Norgate.) 1s.—The text of this "political sketch" is found in the preface, and runs thus: "The Papacy was for hundreds of years

suzerain over kings, and the Holy Roman Empire was its armed defender. It is now the head of a world-wide voluntary association which wields no sword but its faith, and which owes nothing to secular governments." For Dr. Barry "Modern Times" begin with the residence of the Popes at Avignon in the fourteenth century, and, in his prologue, he glances at centuries still more distant. The consequence is that in the short compass at his disposal, he is compelled to write for those who beforehand know something of the story, and this makes his last chapter on the years between 1815 and 1870 somewhat difficult to follow, crowded as they are with events which shaped the Church of which Dr. Barry is an honoured member into the form which it bears to-day. But the sketch is interesting as a presentation of European history from the central viewpoint of Rome, written with fairness and a historical sense, and it should do much to disabuse some Englishmen of the ideas held by them in their ignorance of Roman ways of thinking.

#### Mathematics.

*Elementary Experimental Dynamics.* By C. E. Ashford. viii+246 pp. (Cambridge University Press.) 4s.—This book, which forms the second part of an introductory course of mechanics, represents the best features in the newer methods of teaching the subject. The author justly maintains that the ordinary deductive treatment of kinetics, starting from Newton's laws as axioms, is ill-suited to young boys; inductive methods appeal to them with greater force. This does not mean, however, that Newton's laws are relegated to a footnote. The author retains them as the foundation-stones of the science, but understanding and faith in them are developed by a simple but interesting course of experimental work. We are glad to see that the apparatus described is of a very simple character. Practically all the experiments that a boy requires to do in school can be performed with a couple of trolleys and a few weights, spring balances, springs, and pulleys. Experimenting with more elaborate apparatus is for the majority of boys a waste of time, but all have such a knowledge of bicycles, motors, engines, turbines, and aeroplanes that the teacher has no lack of texts from which to preach sermons on dynamical principles. This discussion of the problems of everyday life is one of the excellent features of the books. The greater number of examples are descriptive or purely arithmetical; towards the end they involve easy algebra and numerical trigonometry. Clear, interesting, and accurate, the book is to be heartily commended.

*The New English System of Money, Weights, and Measures, and of Arithmetic.* By Rear-Admiral G. Elbrow. 48 pp. (King and Son.) 1s. net.—This little book is a plea for the reform of our system of weights and measures by the adoption of the duodenary in place of the usual denary scale. It is well to examine possible alternatives to our present admittedly unsatisfactory system, and this is done by the gallant author in a very thorough manner. We fear that he has only succeeded in showing that this way of reformation is quite impracticable. The denary scale is so interwoven with the texture of all civilisation that its replacement by another scale is impossible. No doubt twelve has the advantage over ten in possessing a greater number of divisors, and this is certainly the reason why our commercial men are so unwilling to adopt the metric system. But we do not think the nation would take kindly to the new numbers, such as "lenty teen" and "lenty lin." All our books of tables would have to be rewritten, and keys would be required to the dates in history. According to the

table at the end of the book our present Sovereign is George IV., who ascended the throne in 1132. The book is on the whole a sane and serious discussion of an important matter.

#### Science and Technology.

*The Early Naturalists: Their Lives and Work, 1530-1789.* By L. C. Miall. xi+396 pp. (Macmillan.) 10s. net.—Naturalists of all grades of proficiency are already indebted to Prof. Miall for several collections of delightful and illuminating essays, no less than for his more technical books. Their obligation is materially increased by the present volume, which traces the development of natural history from Aristotle, "the real founder of comparative anatomy," as far as the death of Buffon. Such a comprehensive view, as the author remarks, is indispensable to the appreciation of recent work. The emergence of modern pre-Darwinian biology from the credulous ignorance of the dark ages is displayed by a series of concise but animated biographies of "the pioneers who opened out new fields of inquiry or introduced new methods," and still more by Prof. Miall's critical commentary on their work and his estimates of the permanent value of their discoveries and speculations. In this manner the reader is enabled to follow clearly the essential steps in the biological achievements of the period under review, and to learn "how some real discoverers began by trying false routes, how others were impeded by time-honoured delusions, or by overbold speculation." These things, as told by Prof. Miall, and illustrated by quotations from the discoverers' writings, make a fascinating story which, one hopes, may be continued to include the age of evolutionary speculation. No one is better fitted than Prof. Miall for such a task.

*School Lessons in Plant and Animal Life.* By John Rennie. xvi+480 pp. (Clive.) 4s. 6d.—The aim of this book is stated to be the instruction of "the teacher, who has no previous technical knowledge of plant or animal structure and life, but is willing to learn in the only way by which real efficiency can be reached and maintained." The way is, of course, by becoming personally and practically familiar with the living things which form the subject of his nature-lessons. Such teachers will find the book an admirable help in every respect. While containing much more than is intended to be used in class, it provides a two years' course of work, arranged in seasons, and supplies material for more than eighty lessons. In addition, it provides useful hints on sources of materials, and outline schemes of study of particular aspects of the subject. The arrangement of the work under seasons necessarily entails a rather disjointed manner of treatment, but this is to some extent rectified by a final chapter which gives a "bird's-eye view of the animal kingdom," as well as an "outline classification of plants." The book is provided with an abundance of useful and attractive illustrations.

*Mechanics and Heat.* By J. Duncan. 381 pp. (Macmillan.) 3s. 6d.—Although written primarily for the use of candidates for the Civil Service examinations for second division clerkships, the scope and method of this text-book render it equally appropriate for other groups of students; thus, students attending an engineering course of an evening technical school will find it well suited to their requirements, and possessing the considerable advantage of combining in one volume a good practical treatment both of applied mechanics and of heat. The latter subject is treated in such a manner that it might equally well be termed "heat engines," the subject which occupies

so prominent a position in the syllabus of all mechanical engineering courses. The practical character of this part of the book is indicated by the headings of the last five chapters—fuels, action of the steam-engine, other forms of steam-engines and boilers and horse-power, efficiency of the steam-engine and boiler, and internal-combustion engines. A prominent feature throughout is the extent to which practical applications are explained, and the diagrams, 314 in number, are remarkably good. Full details are given for a number of essential experiments; worked examples are also included in the text.

#### Pedagogy.

*Greek Education: Its Practice and Principles.* By James Drever. viii+108 pp. (Cambridge University Press.) 2s.—The style of this book, which is a little thin and spun out, and partly its matter, which includes sketches of the philosophy of Plato, Anaxagoras, and others, biographical details, and so forth, is explained by its author's position. Being lecturer in education at Edinburgh, he has to address teachers in training of all classes, and apparently many who know nothing about Greek or the Greeks (is this the firstfruits of the Greekless education which has in ten years spread over all Scotland?). Mr. Drever's analysis is correct, and he makes some good points: e.g., the different ideal which came up in the Hellenistic period, and the fact that the same educational principles prevailed from antiquity until Rousseau. He does well to recall our thoughts to the Greek ideal, and to remind us that it is different from the modern ideal. He seems to imply, however, that the modern ideal of efficiency is based on a process of reasoning, whereas it is due simply to the pressure of industrial competition. In fact, the central theme of his book ought to have been the remark made on p. 23, that Athens, although a great commercial centre, "would never have dreamt of applying the term education to the preparation for a commercial or industrial pursuit." And our modern schools, founded by well-meaning local authorities, or modelled to suit public opinion, are all based on the assumption that education is just the preparation for a commercial or industrial pursuit. We commend to those who think so his description of the Greek harmonious cultivation of bodily and mental powers side by side, with conduct as their crown: gymnastics and music, crowned by Sophrosyne. To those who wish to apply the Greek principles to modern life we remark that Greek education was in close touch with life, that it included compulsory military service, and led up to practical politics.

#### Miscellaneous.

There are now seventy volumes ready of the *Cambridge Manuals of Science and Literature* (Cambridge University Press, 1s. net each). Of the batch of ten new volumes which have been received, five deal with subjects of science: "Bees and Wasps," by Mr. O. H. Latter; "Submerged Forests," by Mr. Clement Reid, F.R.S.; "Wireless Telegraphy," by Prof. C. L. Fortescue; "The Wanderings of Animals," by Mr. Hans Gadow, F.R.S.; and "Beyond the Atom," by Prof. John Cox. The other five volumes, though not so directly concerned perhaps with subjects included in the curriculum, deserve a place in the school library, especially Miss Spurgeon's "Mysticism in English Literature," Mr. A. H. Thompson's "English Monasteries," and Mrs. Adam's "Plato: Moral and Political Ideals." Small authoritative volumes of this kind will serve an extremely useful purpose in helping young students to discover their own individual aptitudes and the subjects with which they can concern themselves most profitably. In fact, it would be

difficult to find more suitable and helpful introductions to the study of large and exhaustive standard works.

*Elementary Workshop Drawing.* By Henry A. Darling. 172+vi pp. (Blackie.) 1s. 6d.—This book will serve as a fairly comprehensive introduction to general geometrical drawing. The examples and exercises are selected, in most cases, for their "practical" value, and are presented in the form in which they would be likely to arise in workshop and factory; but there is nothing new either in the scope of the book or in the method of treatment adopted. In places where a text-book on "workshop" drawing is indispensable the teacher will find the book useful, the illustrations being well selected and clearly reproduced, although in many instances they are somewhat familiar in appearance.

### EDUCATIONAL BOOKS PUBLISHED DURING JUNE, 1913.

(Compiled from information provided by the Publishers.)

#### Modern Languages.

- "A First German Prose Composition." By Dr. F. W. Wilson. (Edward Arnold.) 1s. 6d.  
 "A French Dramatic Reader." Compiled by Marc Ceppi. 204 pp. (Bell.) 2s.  
 "Simple French Stories." Compiled by Marc Ceppi. 128 pp. (Bell.) 1s. net.  
 Black's Simplified French Readers for Elementary Classes:—Andersen, "Compagnon de voyage, Le Briquet." Grimm et Andersen, "Contes d'Animaux." Grimm, "Histoires Merveilleuses." D'Aubray, De Beaumont et Grimm, "Princes et Princesses." Laboulaye, "Poucinet, es-tu Content?" Grimm, Andersen et Laboulaye, "Aventures Etonnantes." All edited by F. B. Kirkman. 32 pp. each. (Black.) Paper, 4d. each; cloth, 6d. each.  
 "Récits et Compositions d'après l'image. Containing 14 plates in colour." By M. Anceau and E. Magee. 33 pp. (Black.) 6d.  
 "Contes de Paris et de Provence." By Paul Arène. Edited by J. S. Norman and C. Robert-Dumas. (Blackie's Copyright French Texts.) 112 pp. (Blackie.) 10d.  
 "Six Contes." By François Coppée. Edited by J. S. Norman and C. Robert-Dumas. (Blackie's Copyright French Texts.) 126 pp. (Blackie.) 10d.  
 "Brunette et Blondinette." By Mme. De Pressensé. Edited by D. C. Bedford. (Blackie's Little French Classics.) 48 pp. (Blackie.) 4d.  
 "Le Réquisitionnaire." By Honoré Balzac. Edited by C. W. Bell. (Blackie's Little French Classics.) 48 pp. (Blackie.) 4d.  
 "German Epics Retold." By M. B. Holly. 288 pp. (Harrap.) 2s. 6d.  
 "Das Libelungenlied." By Dr. Vilmar. Edited by E. Hugelshafer. 224 pp. (Harrap.) 1s. 6d.  
 "Irregular French Verbs." By R. W. Wright. (Longmans.) 1s. 4d.  
 "Little French Plays for Little English Children." By Mrs. A. G. Latham. (Siepmann's Primary French Series.) 82 pp. (Macmillan.) 1s.

#### Classics.

- "A Greek Vocabulary for the Use of Schools." By S. Nicklin. xii+104 pp. (Cambridge University Press.) 2s. 6d. net.  
 "Tales of Great Generals. Selections from Cornelius Nepos." Edited, with Introduction, Notes, Vocabularies, and English Exercises, by W. D. Lowe.



(Oxford Elementary Latin Readers.) 96 pp. (Clarendon Press.) 1s. 6d.  
 "Ancient Greece." By H. B. Cotterill. 500 pp. (Harrap.) 7s. 6d. net.

#### English: Grammar, Composition, Literature.

"Junior English Grammar." By A. E. Roberts and A. Pratt. (Edward Arnold.) 1s.  
 "Composition from English Models." By E. J. Kenny. Book I., for Junior Forms. 100 pp. 1s. Book II., for Middle Forms. 250 pp. 1s. 6d. (Edward Arnold.)  
 "Guy Mannering." By Sir Walter Scott. (School Edition.) Introduction and Notes by J. Harold Boardman. 482 pp. (Black.) 2s.  
 "Outlines of Victorian Literature." By Dr. Hugh Walker and Mrs. Hugh Walker. viii+224 pp. (Cambridge University Press.) 3s. net.  
 Sheridan, "The Rivals." Edited, with Introduction and Notes, by T. Balston. With "Goldsmith, the Good-Natured Man." Edited, with Introduction and Notes, by G. G. Whiskard. Bound together. 226 pp. (Clarendon Press.) 3s. 6d.  
 Tennyson, "The Coming of Arthur, The Passing of Arthur." Edited, with Introduction and Notes, by C. B. Wheeler. Also bound with "Enid," by the same editor. 43 pp. (Oxford University Press.) 1s.  
 George Eliot, "The Mill on the Floss." Edited, with Introduction and Notes, by R. O. Morris. 650 pp. (Oxford University Press.) 2s.  
 Shakespeare, "Henry IV." Part i. By A. J. F. Collins. 212 pp. (Clive.) 2s.  
 Longmans' Class-Books of English Literature: "Literary Selections from Newman." With Introduction and Notes by A Sister of Notre Dame. (Longmans.) 1s. 6d.  
 Longmans' British Classics: "Macaulay's Essay on Frederic the Great." Edited by David Salmon. 2s.  
 "Macaulay's Essay on Warren Hastings." Edited by David Salmon. 2s. 6d. (Longmans.)  
 Tennyson, "Ulysses and Columbus." Edited by H. C. Notcutt. 40 pp. (Macmillan.) 1s.  
 "Stories from History and Literature." Three series, complete. By A. Gertrude Caton. 142 pp. (Macmillan.) 1s. 3d.  
 "The Song Garland." By J. S. Joannès. 366 pp. (Macmillan.) 6s.  
 Shakespeare, The Tudor: "Hamlet." Edited by G. P. Baker. 240 pp. 1s. net. "Sonnets." Edited by R. M. Alden. 230 pp. 1s. net. (Macmillan.)  
 Children's Classics—Junior: No. 23, "Alice's Adventures in Wonderland." (Adapted.) By Lewis Carroll. 48 pp. Paper cover, 2½d. Cloth cover, 3½d. Senior: No. 54, "The Story of Little Nell." Abridged from "The Old Curiosity Shop." By Charles Dickens. 66 pp. Paper cover, 4d.; cloth cover, 5d. (Macmillan.)  
 "A Progressive Course of Précis Writing." By F. E. Robeson. 145 pp. (Oxford University Press.) 2s. 6d.

#### History.

"A Social History of England." By George Guest. xii+210 pp. (Bell.) 1s. 6d.  
 Canada, 1535-1913. Edited by James Munro. (Bell's English History Source Books.) viii+120 pp. (Bell.) 1s. net.  
 "A Brief History of Greece." By the Rev. E. C. Everard Owen. 176 pp. (Blackie.) 2s.  
 "A Brief History of Rome." By the Rev. E. C. Everard Owen. 144 pp. (Blackie.) 2s.  
 "Stories from Dutch History." By Arthur H. Dawson. 288 pp. (Harrap.) 3s. 6d. net.  
 "Story of French Revolution." By Alice Birkhead. 256 pp. (Harrap.) 3s. 6d. net.

"In Feudal Times." By Dr. E. M. Tappan. 368 pp. (Harrap.) 5s. net.  
 "Early Sea People." Parts i. and ii. By Dr. Katharine Dopp. Part i., 116 pp. Part ii., 108 pp. (Harrap.) 1s. each part.  
 "Germany to the Present Day: A Short History." By A. W. Holland, with Foreword by Norman Angell. ix+164 pp. (Murby.) 2s. net.

#### Geography.

"Outlines of Physiography." New and revised edition. By Prof. A. J. Herbertson. (Edward Arnold.) 2s. 6d.  
 "A Commercial Geography of the World." By O. J. R. Howarth. (Oxford Geographies.) 236 pp. (Clarendon Press.) 2s. 6d.  
 "Animal Geography: The Faunas of the Natural Regions of the Globe." By M. I. Newbigin. (Oxford Geographies.) 340 pp., and 37 full-page plates. (Clarendon Press.) 4s. 6d.  
 "The Clarendon Geography." Vol. ii. By F. D. Herbertson. (Oxford Geographies.) 384 pp. 3s. Also separately, Part iv., Asia; Part v., Africa and Australia; part vi., North and South America. 1s. 4d. each. (Clarendon Press.)  
 The Atlas Geographies—Book I., "Physical Geography." By Thomas Franklin and E. D. Griffiths. 87 pp.+xi. maps. (Johnston.) 1s. 6d. net.  
 "Earth Knowledge." Book IV. 80 pp. (McDougall.) 6d.

#### Mathematics.

"A School Arithmetic." By A. C. Jones and P. H. Wykes. (Edward Arnold.) Without answers, 3s. 6d.; with answers, 4s. 6d.  
 "A First Formal Geometry." By R. Wyke Bayliss. (Edward Arnold.) 1s. 6d.  
 "Geometry for Schools." By W. G. Borchardt and A. D. Perrott. Complete, xvi.+526 pp. 4s. 6d. Books I-V., xvi.+422 pp. 3s. 6d. Vol. iv., Solids, viii+100 pp. 1s. (Bell.)  
 "New School Geometry." Part ii. Rupert Deakin. 140 pp. (Mills and Boon.) 1s. 6d.

#### Science and Technology.

"Principles of Educational Woodwork." By W. A. Milton. 352 pp. (Blackie.) 6s.  
 "Tables Annuelles de Constantes et Données humerique de Chimie, de Physique et de Technologie." 726 pp. (Churchill.) Cloth 28s. 6d. net; paper, 25s. 6d. net.  
 "General and Industrial Organic Chemistry." By Dr. Ettore Molinari. Translated by T. H. Pope. 770 pp. (Churchill.) 24s. net.  
 "Theory and Practice of Mechanics." By E. Slocum. xlii+442. (Constable.) 15s. net.  
 "Zoology." By E. Brucker. (Thresholds of Science Series.) (Constable.) 2s. net.  
 "Mechanics and Heat: An Elementary Course of Applied Physics." By J. Duncan. 400 pp. (Macmillan.) 3s. 6d.  
 "Gas Analysis." Second edition. By L. M. Dennis. 450 pp. (Macmillan.) 6s. net.  
 "School Hygiene." By F. B. Dresslar. 382 pp. (Macmillan.) 5s. 6d. net.  
 "Principles and Practice of School Gardening." By Alexander Logan. 330 pp. (Macmillan.) 3s. 6d.

#### Pedagogy.

"Handwork and its Place in Early Education." By L. L. Plaisted. 340 pp.+319 illustrations. (Clarendon Press.) 4s. net.  
 "Tragedy of Education." By E. G. A. Holmes. (Constable.) 2s. 6d. net.  
 "Everyday Problems in Teaching." By Prof. M. V. O'Shea. (Longmans.) 4s. 6d. net.

"Human Behaviour: A First Book in Psychology for Teachers." By S. S. Colvin and W. C. Bagley. 354 pp. (Macmillan.) 4s. 6d. net.

"The Way to the Heart of the Pupil." By Hermann Weimer. 192 pp. (Macmillan.) 2s. 6d. net.

"Educational Administration: Quantitative Studies." By G. D. Strayer and E. L. Thorndike. 404 pp. (Macmillan.) 8s. 6d. net.

#### Miscellaneous.

"The Age of Machinery: The Forces of Nature turned to the Service of Man." With 32 full-page illustrations. By Alexander R. Horne. 208 pp. (Blackie.) 1s. 6d.

"Regulations of the Oxford and Cambridge Schools Examination Board for the Year 1914." 90 pp. (Cambridge University Press.) 1s. net.

"English Political Institutions: An Introductory Study." Second edition. By J. A. R. Marriott. 348 pp. (Clarendon Press.) 4s. 6d.

"Child Mind: An Introduction to Psychology for Teachers." By Benjamin Dumville. 222 pp. (Clive.) 2s. 6d.

"Stories of Animal Life." By Florence Bass. 128 pp. (Harrap.) 6d.

"Stories of Plant Life." By Florence Bass. 128 pp. (Harrap.) 6d.

"Robert the Bruce." By R. L. Lackie. 256 pp. (Harrap.) 5s. net.

"Conquerors of Peru." Retold from Prescott. By Henry Gilbert. 286 pp. (Harrap.) 3s. 6d. net.

"In the Days of Lionheart." By Wallace Gandy. 320 pp. (Harrap.) 3s. 6d. net.

"The Passing Months." Vols. i. and ii. 80 pp. each. (McDougall.) 6d. net each.

"Suggestive Phonic Infant Reader." I. 70 pp. (McDougall.) 7d.

"Some Secrets of Nature." (Short Studies in Field and Wood.) xiv+144 pp. (Methuen.) 1s. 6d.

"The Romance of Nature." (Studies of the Earth and its Life.) xx+164 pp. (Methuen.) 2s.

"Physical Training." Written by an Officer of the Regular Army, and edited by E. John Solano. Junior Course. 172 pp. 1s. net. Senior Course. 248 pp. 1s. net. (Murray.)

the business world. Miss Smith, from the Borough Polytechnic, was particularly emphatic on this point in the paper which she read. Mr. Charles, the headmaster of the Day Commercial School of the City of London College, emphasised the fact that such an institution did exist and was doing all that the various speakers had put forward as suggestions; and that it was, moreover, a public institution, inspected and aided by the L.C.C. and State. The necessary connection between employers and trainers is more easily maintained by a central school than by a multiplicity of secondary schools.

There is one other point, namely, the question of commercial correspondence. Surely the subject cannot be dismissed by calling it "an abomination," and saying that "the special jargon . . . can be acquired when it becomes necessary"? The special trade terms, business abbreviations, the setting out of contracts and offers, do necessitate special lessons even with girls who have had good tuition in letter-writing at the secondary school. M. E. WHITTAKER.

THE article in question did not profess to be "a report of the proceedings at the conference," but only to offer suggestions "based mainly on the views expressed in the course of the discussion." It is quite true that various opinions were expressed at the conference, some of them representing particular interests, but the balance of reasoned conviction clearly inclined towards the solution which I outlined, namely, that the foundation of a training for secretarial work should be provided by the general education offered at an ordinary secondary school, and that the more technical requirements should be supplied by special colleges after the school course was completed. I adhere to all the hard words I said about what passes for "commercial correspondence." Each kind of business has its own "special trade terms," its own "abbreviations," and its own forms of "setting out contracts and offers," and it is folly to teach all these in advance, or any particular set of them, before the exact destination of each student is known.

I understand that a report of the conference has been printed, and may be obtained (price 6d.) from the Association of Women Clerks and Secretaries, 12 Buckingham Street, Strand, W.C.

JAMES OLIPHANT.

### CORRESPONDENCE.

*The Editors do not hold themselves responsible for the opinions expressed in letters which appear in these columns. As a rule, a letter criticising any article or review printed in THE SCHOOL WORLD will be submitted to the contributor before publication, so that the criticism and reply may appear together.*

#### Secretarial Training for Girls.

IN the article on "Secretarial Training for Girls," which appeared in your July issue, may I point out what appears to me a very serious omission in the report of the proceedings at the conference held at the University of London under the auspices of the Association of Women Clerks?

There were three decided opinions in regard to the training of women secretaries, (i) That it was being done, and could be done, in the existing private institutions, two principals of such institutions addressing the meeting on the subject. (ii) That classes could be arranged in the ordinary secondary school, several headmistresses strongly advocating this. (iii) That a central school could undertake the work more thoroughly, especially if the staff were not only teachers, but also men and women with actual knowledge of

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# The School World

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SIXPENCE.

## THE CONGESTED CURRICULUM.

CROWDED curricula, a bewildering variety of subjects, and time-tables which must, in many cases, represent a continuous and unhealthy rush from one subject to another, are all marked features of the modern school-room. Our fathers knew them not. Read, for example, Arnold's account of school hours at Rugby, and though Arnold himself was something of an innovator, you are struck at once with the comparatively thorough and leisurely way in which the school-day must have proceeded. There were twenty lessons per week on about five subjects. The practice of the best of the old grammar schools was probably not very different. But in a modern secondary school, as all our readers know, and as we shall presently see in somewhat greater detail, a widely different system prevails. A boy's or a girl's school course may be regarded as possessing three dimensions—length, breadth, and depth. We are not succeeding very well with the first of these elements, for we have reason to be troubled at the early termination of average school-life. In a sense we are succeeding too well with the second, if breadth is to be measured by the number of different subjects with which the pupil has to struggle. And so it is to be feared that in the net result a secondary-school education in our time is distinctly lacking in regard to depth. A modern schoolmaster, though he may by no means desire to revert to "the grand old fortifying classical curriculum," and though he may prize his present opportunities of discovering, through the agency of a varied curriculum, something which nearly every boy can do, and do well, may yet justly sigh for the good old days when it was possible to do sound and solid work, at any rate with those pupils whom the rigid curriculum suited.

In the vast majority of our present secondary schools, the restricted curriculum of former

days has never existed, or else has vanished, never to return. One by one have subjects been added to the list in response to outside pressure, and little by little, therefore, has time been deducted from the average formerly allotted to each subject. When once the classical tradition had broken down, and the problem of the relative values of school studies was forced to the front, the claims of English, of course, proved incontestable. The scientific movement of the latter part of the nineteenth century, and the threatened position of England in the markets of the world, led to the conclusion that **something more must be done** in the schools for science and for modern languages; and the introduction of physical science meant that at the same time mathematics must be taken more seriously than before. Then it was felt that to give regular instruction in ancient history, whilst allowing a boy to leave school in comparative ignorance of modern history, even that of his own country, would no longer do. But now geography, which might formerly be taken *ad hoc* in connection with a portion of history, or might be liberally neglected, and in any case consisted of little more than easy chats about other lands and other peoples, has become a science with its own body of specialists. Further, drawing and vocal music are no longer regarded as mere "accomplishments," to be practised only by the talented few, but as regular parts of every child's weekly fare; and handwork is now a "subject" without which no person's education is considered complete. The traditional games no longer suffice for sound physical development, but must be supplemented by formal physical exercises. In girls' schools the claims of the domestic arts, and of the science underlying them, must not be ignored. And to crown all, in some schools, often as the result of pressure from the parents, such bread-and-butter subjects as book-keeping and shorthand are added, though

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it is comforting to know that many of the most intelligent business men set small store by the efforts of the school in these directions.

Let us now see how all this works out in practice. We give a few examples that have come under our notice, and for purposes of comparison they shall in each case be drawn from the highest class of the lower school, or from the lowest class of the middle school. Here is an example of the distribution of lesson periods in a day county school for boys:—

	Periods per week		Periods per week
Religious Knowledge	1	Chemistry	4
English	5	Drawing	2
Geography	2	Music	1
History	2	Handwork	2
Latin	4	Physical Exercises	1
French	4		—
Mathematics	5		33

Here we have thirty-three periods per week, occupying twenty-six hours, giving an average of forty to fifty minutes per lesson. The real point of this table is seen when we observe that two lessons a week are given to geography, history, and drawing, respectively, and when we remember that the value of these two lessons must depend largely upon the amount of homework by which they are backed up. But what chance of this kind can these subjects have when the claims of such solid fare as English, Latin, French, and science are still to be reckoned with, and when we bear in mind that the boy is in school twenty-six hours a week? Through no fault of the teacher's a superficial smattering would seem to be the inevitable result.

An analysis of the time-table for a corresponding class in a girls' school of similar type gives the following results:—

	Periods per week		Periods per week
Religious Instruction	1	Drawing	2
English	3	Music	1
Geography	2	Needlework	2
History	2	Physical Exercises	3
French	4	Preparation	4
Mathematics	5		—
Chemistry	4		33

We may add that in the class just above this Latin is added, with three periods a week, this time being obtained chiefly at the expense of English, French, drawing, and needlework. Except that some time is set apart for preparation in school, this time-table bears a close resemblance to the boys'. In reality it is worse. For the claims of the home, or those of the music mistress and the dancing class, are, and, indeed, should be, much more insistent in the case of girls. Dare we add that the claims of nature are even more insistent?

Boys are, as a rule, none the worse for being "driven" a little, between the ages of twelve and fifteen, whereas it is usually undesirable, and often positively wicked, to "drive" a girl at that period of her life.

Our next example shall be from a typical girls' high school. The class selected is that immediately below the class in which Latin is begun:—

	Periods per week		Periods per week
Religious Instruction	2	Drawing	2
English	4	Music	1
Geography	2	Needlework	1
History	2	Domestic Science	1
French	3	Physical Exercises	2
Arithmetic	3		—
Science	1		24

Here we get twenty-four periods spread over eighteen to nineteen hours a week, preparation being done entirely outside this time. In the class above this, Latin or German is begun, the smattering of domestic subjects being discontinued, and the time devoted to English being cut down by nearly one half.

An inspection of the above tables discloses the fact that in a distinct majority of cases the number of lesson periods per week assigned to a subject is either one or two. To be quite precise, out of thirty-six entries, twenty-two are entries of not more than two periods; and we can confidently affirm that an inspection of three-score tables instead of three would give a precisely similar result. It is widely felt that facts like these, taken in conjunction with the small amount of homework that can possibly be demanded, show that a great deal of exceedingly superficial and valueless work is being done.

It is one thing, however, to diagnose a case, and another thing to suggest the right treatment. So far we have merely stated in set terms, and perhaps put in a somewhat more precise form than usual, what most people who are conversant with the system are quite well aware of; and we may fairly be asked what we would do if we had to find a remedy for the complaint we have tried to formulate. It is obvious that, considering the varying conditions of different schools, no single remedy could be found which would be universal in its application. Still, there are certain definite directions in which reform may be looked for, and these we now proceed to indicate.

In the first place, we think that no progress can be made towards the solution of this problem until, in our discussions, we can rid ourselves of what may be called the fallacy of the specialist. In another connection Mr. Holmes has spoken of a person "engaged in the hopeless task of surveying, or trying to survey,

a wide field of action from the bottom of a well-worn groove." With the original application of those words we are not here concerned, but we are strongly reminded of them when we think of the specialist's usual attitude towards the curriculum as a whole. So long as teachers continue to think only or mainly of subjects, so long as they fail to consider the value and function of each subject in its relation to the pupil's education as a whole, just so long must they continue the futile attempt to pour quarts of liquor into pint pots. Some time ago a company of headmistresses produced a book on the public-school education of girls. The book is valuable and suggestive in its way. But its way is the usual way of a collection of independent chapters on subjects, each written by a specialist. The really burning question of girls' secondary education was left exactly where it stood before. We venture to say that if eight or ten of these able and earnest women would form a committee, determined to think less about individual subjects and more about the instruction plan as a whole, and bent upon producing a coherent scheme which would tend to the abolition of snippets and smatterings, even if certain "subjects" had apparently to suffer in the process, they might produce a report which would cause them to deserve even better of their country. That they already deserve well we gladly admit.

Believing, as we do, that not much good is being done with a substantial subject unless at least three lesson periods a week are assigned to it, with a fair allowance of time for preparation, we affirm, in the *second* place, that at certain stages of school life the present curriculum should be definitely lightened, or, as we should prefer to say, the present number of subjects should be definitely diminished. And we believe that this can be done more easily, and with less loss, than is commonly supposed. We cannot in a single article traverse the whole ground, but we may take, as an instance, the subject of geography. We have already referred to the fact that, in the hands of the modern specialist, geography has become a serious science, as "stiff" in its way as any other science. Now if geography is taught in this sense, is there any need, in the education of children between eleven and fourteen, that any other "science" should be taught? Might not this subject, with an allowance of three or four periods per week, be made to represent all that is necessary in the study of "Realien," of the physical environment, at this stage of school life? The scientific specialist will of course cry out that the mental discipline peculiar to the physical or chemical

laboratory will be missing. The modern geographer, we suspect, would not allow this assertion to pass uncontested; but, in any case, surely the worst sort of discipline is obtained by mere pottering with a dozen subjects. The fact is that the word "subject" has a great deal to answer for. People talk as if each "subject" existed snug in its own skin, out of visible relation to the rest. But the farther we go back in the child's mental history, the less appropriate is it to differentiate sharply between subjects. We are far too apt to transfer the terminology of the university without modification to the lower and middle forms of the secondary school.

We believe that this question of diminution of subjects is urgent in all schools, but especially in girls' schools, if only because the claims of the domestic arts have often to be recognised. We yield to none in our admiration of what women have done for the secondary education of girls during the last fifty years. But we suggest that they have been too ready to imitate the education of boys, defects and all. Sex equality, in which we strongly believe, has been confused with sex identity, which is a very different idea. Unless some change is made, and made soon, the women of the next generation will not be altogether grateful to the women of this.

Our remark that the word "subjects" has much to answer for leads us to make a *third* suggestion, that the plan of "intensive" study of a certain aspect or branch of a subject has not hitherto received the attention it deserves. To examine some time-tables one would suppose that arithmetic, algebra, and geometry had nothing to do with one another; and that English literature, composition, and grammar were all separate "subjects," to be separately provided for in the time-table at all stages of school life. Such an arrangement obviously favours the wild rush from one sort of subject-matter to another that now prevails; it is unscientific; and it prevents or discourages the teacher from trying the plan of giving his pupils that brief but thorough "soaking," say in grammar, which is often the surest method of sound progress. This degree of detail and of rigidity in the time-table accentuates the mischief of the present system.

It is always useful in such matters as these to compare notes with some other country, and as it happens, both in Germany and in America the construction of the secondary-school curriculum *as a whole* has received more attention than with us. For several reasons we think America the more suitable example. "Until 1892," says a recent American writer, "and even to the present day, the prevailing

distribution of studies in many high schools was such that four subjects, to each of which five periods per week were assigned, constituted the weekly programme." But as more than four subjects were often needed, this arrangement meant that a subject, say history or science, might be dropped for a year or two, and then taken up again. Such a plan cannot be defended, and the findings of the Committee of Ten, which sat in 1892, and probably represented the best educational opinion of the country, practically amounted to assigning not more than four periods per week, and *never less than three*, to each substantial subject, including languages, mathematics, science, and history.

We do not say that this arrangement is perfect, but we do say that the whole problem needs thorough discussion, in the light of all available experience, if secondary education in this country is to be placed on a sound basis. That the present situation is unsatisfactory we believe is privately acknowledged both by inspectors and by teachers. The key of the position is undoubtedly held by the headmasters and headmistresses, and by them only. Everyone else concerned, including the Board of Education and the intelligently interested parent, seems to be waiting for them to move. May they move soon!

### THE KINEMATOGRAPH IN THE TEACHING OF NATURAL SCIENCE.

By H. O. HALE, M.A.  
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THE aim of this article is to give some help to teachers of natural science who wish to know what films are available at the present time and where they can be obtained. It may be stated at once that many of the so-called renter firms have such films on their list, but they are usually few in number and deeply embedded in the mass of comic and melodramatic rubbish which has discredited the kinematograph so greatly as a possible instrument for purposes of education. The beginner will do well to confine himself for the present to the films of Messrs. Pathé Frères, 31, Charing Cross Road, London, W.C., who have already an interesting and fairly comprehensive list.

Beginning with physical science, films are forthcoming which show elementary experiments with hydrogen, oxygen, carbon dioxide and liquid air. The invisibility and low density of hydrogen are demonstrated, with the fact that this gas yields water when burnt in the air. Oxygen appears as an aid to burning, indispensable for breathing, and it is further

shown that air is diluted oxygen. The preparation of carbon dioxide in the laboratory is shown, and a lighted match is extinguished. The high density of the gas is utilised to turn a paper mill, and a demonstration is given of the services of the green plant in removing carbon dioxide from the air.

Other films show the properties of liquid air, the formation and growth of crystals, the splitting of an iron shell by freezing water, the passing of a weighted iron wire through a block of ice without dividing it. Others, again, deal with the elementary facts of magnetism and electricity. The properties of X-rays are shown particularly well by the films dealing with this subject. The skeleton, the beating heart, the respiratory movements of the diaphragm in the living animal, are clearly seen. The film called "Quicker than Thought Movements" makes a beginning with the tempting subject of the analysis of rapid motion. The flight of a bullet, the gases proceeding from the muzzle of the gun, the movements of a light, hollow ball when supported by a rising column of water, the effect on the column when it is struck by the bullet, are all among the interesting observations offered by this film.

For students of botany the film which shows the birth, life, and death of plants may be taken first. Here we have another of those interesting adjustments of the time factor which are perhaps the most valuable contribution of the kinematograph to natural science. "The Anatomy of Plants" may be taken next. It gives the internal structure of the root, stem, and leaves, and concludes with the germination of the seed. To these may be added "The Germination of a Pollen Grain," "The Pitcher Plant," "Carnivorous Plants," and "Mushroom Growing," the whole forming a very useful presentation of the elementary parts of this subject.

Messrs. Pathé Frères have a long list of microscopic films of great value. A beginning may be made with "Human Blood," perhaps a somewhat uninspiring film, but the leucocytes and red corpuscles are shown well, and an idea is obtained of their relative size. "The Circulation of the Blood" may come next, and this may be followed by various films showing the invaders to which human blood is subject. For this purpose "The Cholera Bacillus," "The Microbe of Relapsing Fever," and various "Spirochetes" will serve, and these do not exhaust the list. "The Phenomenon of Agglutination" will follow conveniently on account of its association with diagnosis. "Amœba" and the "Amœboid Movements of a Leucocyte" will lead up to "Phagocytosis," which shows the mechanism of

natural resistance. "'606' versus *Spirochaeta pallida*" shows the working of the most recent discovery in the region of chemo-therapy. "*Trypanosoma lewisi*" and "Sleeping Sickness" are very vivid films which illustrate the very important fact that our microscopic enemies are not confined to bacterial forms of life. "A Drop of Water under the Microscope" will indicate at least one avenue of infection, while "The Mosquito" shows the defensive measures which have done so much to improve the conditions of life in tropical and sub-tropical countries.

The study of embryology and evolution is aided by "The Development of the Frog," and by "Axolotl," a small reptile which retains its gill-breathing apparatus throughout adult life.

Some fifty or more natural history films offer a wide variety for choice. "The Carrot Caterpillar" gives a lucid presentation in colour of the life-history of an insect. Akin to this film are "The Life of Ants," "The Birth of a Dragonfly," and "The Silk Industry in Cambodia." "The Great Centipede" is also worthy of mention. "Hidden Life in Seaweeds," "Sea Anemones," "The Octopus," "Crabs and Lobsters," and "Denizens of the Sea," with many others, deal with the subject of marine biology. "The Sedge-warbler and the Cuckoo" tells a well-worn story once again, but in a most graphic manner. To this may be added "The Chaffinch," "Wild Birds at Home," and "Birds in their Haunts." "The Dormouse," "The Polecat," "The Agouti," and "The Civet Cat" are entertaining films, though they do not furnish a systematic course of instruction in a difficult subject like the microscopic pathological films which have been dealt with in an earlier paragraph.

The cost of hiring these films from Pathé Frères would never be more than £2 per 1000 feet, and would generally be much less.

It cannot be claimed that the foregoing list is by any means exhaustive, still less that it shows that we can now say farewell to all other methods and launch out on a course of instruction with the kinematograph alone. In this connection it may be recorded that the opinions expressed at the educational conference held in association with the recent kinematograph exhibition at Olympia were not entirely unanimous. Not every one came to praise, but it may be urged very fairly that the objections offered to the method were based principally upon a misapprehension of its possibilities and an exaggeration of its dangers. The kinematograph is not about to displace all the older educational tools, and it works no miracles. It is an arrow added to the quiver, or, shall we say rather, a new variety of scalpel for our case of instruments.

The criticisms brought forward at the conference emphasised to some extent the things the kinematograph will not do, and, indeed, would never be asked to do; the things, furthermore, that it could do, but certainly ought not. For example, the question was asked whether the film of the growing plant does not destroy the ideals of beauty engendered by the flower. The answer would seem to be that the film does not hide the beauty of the flower, but it places an additional aspect before the mind. It reveals the plant almost as a sentient organism, seeking what it requires, almost fighting for it; but surely there is no incompatibility between effectiveness and beauty. We may go further. It is immoral to offer the mind of a child the ideal of beauty alone. There is no real beauty in an ineffective character or an ineffective physique, whatever the superficial external grace may be.

Let it be granted that the film portrays the plant in a new, perhaps a startling, aspect. This aspect is not to be shunned, but to be correlated with the old. There is no antagonism, but merely a broadening of conceptions, and in education this is our predominant need. It does not matter what boys and girls know, but what they perceive. Every teacher stands up before his victims time and again with the feeling that his task is to move mountains. In spirit he takes off his coat and turns up his sleeves. He knows quite well that there are some brains before him as keen and direct as a searchlight. They will go straight to the goal and explore every cranny of it. There will be others who will get there after a while. The tale must be told twice or thrice over. There must be some ringing of the changes upon the central theme, perhaps an illustration or two, which will prove nothing, but may illuminate much. There is no change at first in the passive, perhaps slightly defensive faces of the middle section of the class, but in due time a light of comprehension, of endorsement, of relief, breaks in the eye of one and another, and now two-thirds of the task is accomplished. Still there remain some few who have not moved forward an inch. The eyes are dumb, or, if anything, half-resentful, half-despairing. "God help us," they seem to say; "we know that our brains are mud, but have you done all that you can? Say it again, say it some other way, and perhaps we shall see it at last."

Such observations are commonplace to every teacher, whose appeal is as much to the understanding as to the memory. The kinematograph will often furnish just the restatement, the change of aspect or of sequence, the summation of ideas which will help a few more, and minimise the residuum who carry nothing

away, often with far more irritation than indifference. "I think I have grasped it, sir," said a dullard to the writer a few weeks ago. A dullard certainly, but a nice mannerly dullard, and not all dull, for he had no sort of illusion about his own intellectual shortcomings. He had added himself up plenty of times. The rare crumb of comfort and self-respect he found on that occasion was worth, perhaps, all the rest of the hour's work.

At the educational conference the real "thick" seemed to be forgotten. From those who spoke on the other side we heard of this able child and that, who gathered ideas with enviable speed, and retained them with a minimum of difficulty. Such children exist, but they do not count. Direction, perhaps restraint, is all they need. If we take care of their bodies, their minds will largely take care of themselves. But we cannot reason for the multitude from them. There are plenty more who must be carried a long, long way, put down to stumble a few steps by themselves and then picked up again. Some day they will come to their strength and walk alone, though perhaps they will never run. If for them the kinematograph is no more than a go-cart it is not to be despised.

Another point may perhaps be dealt with. The purpose of this paper is to give some description of available scientific films, and it is a digression to turn to history, but the problem and its solution are essentially the same in this subject also. We must use what we have already, and in the light of our experience press forward for more. The majority of the speakers at the conference seemed to feel that the kinematograph could help little in the illumination of the past. We were told that there could be no reality in an historical film. It was urged on the other side, and urged, I think we may feel, rightly, that the fault is with us rather than with the method. There is work to be done, of course, some fascinating difficulties to be overcome, but no impossibility. What are our materials? In the first place we have plenty of contemporary literature, and, further, a profusion of buildings and sculpture, some pictures and other material relics.

The real question is, whether our intuition aided by these can interpret the spirit, the mental attitude, of our forefathers. Very probably it can. The writer remembers well a pronouncement of Prof. Gwatkin, whose contribution to early Church history is so valuable, to the effect that we cannot hope to understand the first and second centuries and, indeed, the Empire period generally, unless we regard the spirit of that age as being in all essentials a modern spirit, the spirit of to-day. In agreement with this view the *Spectator* of

April 5th, 1913, writes: "You cannot pick up a great book of any past age in which the sincerity of the author outweighs artifice without exclaiming to yourself before you have read a few pages, 'How modern that is; the writer might have had in his mind my own experience of to-day.' The *Odyssey* is a modern story; the plays of *Æschylus* have modern plots; *Molière* foresaw every fashion and foible of our own day."

Now this is true, and within the experience of most of us. Go, say, to the British Embassy in some foreign city to ask a small favour. You will not see the ambassador, but Hotspur's young lord with the pouncet box will come to you, a suave and smiling lad, his clothes a harmony of perfection, his whole air of sympathy and welcome sincere enough, but weighed to a milligramme to suit the case in hand. A delightful person in his proper setting, but we can enter into Hotspur's feelings as he leant on his sword, half dead himself with killing. Or meet by chance upon some beach or golf-links your old college friend who has become chaplain to an archbishop. He will be so glad to see you. With rapt attention he will listen for forty full seconds to your insignificant recital of what you have done and been for the past ten years. Well within the measured minute he will be so glad to have met you, and as he passes on his shining way his pouncet box will waft its own farewell.

If there has always been as much human nature in man as there is now, what have we to do? We must set to work, the best of us, the most learned of our professors, the most imaginative of our actors, to realise the past in the light of our own attitudes of mind, and of the circumstances, the incidents, the accidents of which we have records which should prove to be enough. Let us give time for tasting, for criticising our work in cold blood, for estimating its accuracy after the heat of the creative moment has died away. We cannot doubt that the bottom of the crucible will be found to contain a "regulus" of genuine metal. The opponent will cry: "Are all the mountains to travail together in order to bring forth this one ridiculous mouse?" By no means; but if all the mice work hard enough they will soon build up a very respectable mountain of material for the use of both teachers and learners of history. Beginnings are small of necessity, but let us make a beginning. If there is life in the idea, as some of us believe there is, it will grow and bear fruit. Who would travel now without a blush on his face and his fingers in his ears in one of the motor-cars of 1900?

In the educational use of the kinematograph



progress will come, as in all other directions, not by rejection, but by use. Let us move on, ready at all times to throw upon the scrap-heap what is useless or less useful, and where we find deficiencies to call for something better. If we call loudly enough and are properly hard to please we shall get what we want in natural science, in history and other subjects also, to the lasting benefit and interest of those whom we wish to serve.

### THE CORRECTION AND SUPERVISION OF WRITTEN WORK IN GIRLS' SECONDARY SCHOOLS.

By M. E. WIGG.

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IT is generally recognised that the satisfactory treatment of written work in girls' secondary schools is a serious difficulty. There is a danger that the detailed correction of exercises may encroach unduly on the mistress's free time, to the detriment of her other school work, and also that part of the over-pressure of the pupil, about which so much is heard to-day, may be due to the amount of written home-work required from her at a time when she is tired physically and mentally with a long and strenuous school-day of work and games.

We all agree that there must be written work, and that there must be correction of exercises, but the problem is to give the girls sufficient practice in the written language to enable them to express themselves clearly and legibly in simple, correct English, without over-burdening them with exercises and the mistresses with heavy corrections. Much has been written and said about this subject, but the evil remains. The children are often over-worked, especially in the higher forms; and the mistress spends nearly all her free time in school, her evenings, and in some cases her Saturdays, in the correction of exercises, to which corrections the children pay as little attention as permitted, and from which in no case is the good derived at all proportionate to the thought, care, and energy expended.

We demand a large quantity of written work from the pupils through a desire to test adequately the knowledge and progress of each individual; and also because it provides a record of work done for headmistresses and inspectors. But if more written work is required from the children than they have strength and time to do properly, we pave the way for incomplete, badly written, carelessly expressed exercises, adding thereby to the mistresses' labour; we undo much of the good derived from the gymnastic classes owing to

the bad position when writing in which the tired girl will in all probability sit; and, moreover, by over-emphasis of the importance of written work we tend to neglect memorisation and real assimilation of knowledge, and to encourage undue dependence on the note-book; whereas we want to develop clear, ready, and easy expression of thought in speech quite as much as in writing.

A certain amount of written work, however, must be done, and some of it must be corrected in detail. But the detailed correction of exercises, most teachers agree, is a particularly monotonous, deadening, exhausting, and unproductive form of work, encroaching unduly on the time which should be spent on reading and on the preparation of lessons, and still more on that which ought to be devoted to recreation and social life, if the mistress is to retain the vigour, freshness, and sympathy with her pupils' point of view, so necessary to her success in the class-room, and to her own happiness as a human being.

It seems that a remedy lies first in the reduction of the amount of written work required from the pupil, which should be the minimum to secure, if possible, correct English, simple in style; secondly, more work might be corrected in class; and thirdly, the ordinary exercise-book might be abolished, for much of the excessive burden of corrections arises from the idea that all the pupil's work must be written in these books, and that what is in the book must be corrected in detail. If the exercise-book is not used, all written home-work can be done on loose sheets of paper, to the great advantage of pupil and teacher alike as regards the carrying of heavy books; and as it is doubtless desirable that part of this written work should be kept for reference, some system of filing the papers can be adopted.

Each pupil might have a file or files, according to whether or not it is wished to keep the work in each subject separate; such of the exercises as the mistress directs can be secured in these files, and a sufficient record is thus kept of the term's work, from which each pupil's progress can be determined accurately enough. If it is wished to keep a record of all the home-work set, and to gauge the standard of the form's work and each pupil's average attainments, one class-file can be kept for each subject, in which the home-work of each pupil in the form is filed in turn. This would be available for the headmistress or inspector, and would indicate very fully the lines and methods pursued by the teacher.

A large amount of written work, however, can be corrected in class. Most formal language work, much mathematical work, and questions of fact generally, can be treated in

this way. Even if some mistakes are left, which will almost certainly be the case with the weaker members of a form, the pupils will derive more benefit from the careful consideration and correction of their own work than from the fuller and more elaborate corrections of their mistresses, which may not always be understood fully even if they are carefully looked at. Moreover, by this method the alterations are made at the time, and the pupil has not to spend the first part of her next preparation period in puzzling out the mistakes in her last exercise, nor the mistress in revising the corrections before beginning her already heavy enough work. The mistress would probably not attempt to do more than walk round the class, glance at the work, and comment on its general neatness, arrangement, and correctness. She would not claim to have corrected it, for most of us recognise that if our pupils are to feel that we practise what we preach with regard to careful and thorough work, all exercises corrected by the mistress must be corrected thoroughly; no faults must be missed in spelling, grammar, construction, or in fact, whether the subject be English, science, French, or mathematics. The less formal the work, the greater is the difficulty, naturally, of class correction; but by allowing all questions of fact to be dealt with in class, the mistress reserves her free time for the more difficult work requiring her individual attention. It is for her to see that she sometimes sets such work as can be corrected by the girls in alternation with questions which can only be dealt with adequately by herself.

The crux of the difficulty seems to be much of the written work in such subjects as English literature, history, and certain kinds of exercises in science and geography. Here it is not merely question of facts, but the pupil's presentation of the same, and the deductions drawn from them. One set of twenty-five exercises in one of these subjects from a middle- or upper-school form will take from two to six hours to correct; this, averaged and multiplied, as it must be, by five or six, often more than doubles the number of hours' work shown on the mistress's weekly time-table. If to this is added time spent in the preparation of the lessons to follow, it is obvious that the over-conscientious specialist in, say, English or history, runs grave danger of losing her vigour and freshness, and of breaking down from over-work, without conferring any corresponding benefit on her pupils, for it is just in these subjects that the girls find their corrections most difficult. They will correct readily enough a spelling mistake or a fault in English or French grammar, but they will not, unless compelled to do so, puzzle out their wrong con-

structions, strengthen their weak sentences, alter their wording to secure better balance, see where their work is wanting in sequence of thought, or where it fails through paucity of ideas and febleness of expression. Nor is it desirable that they should always spend as much time as this would necessitate on their old work if they are expected to do a new exercise as well; and yet the mistress must direct their attention to these points, and it is just in these particulars that they need practice.

Here, again, there seems to be an advantage in the use of loose paper instead of exercise books. For not all practice work need be kept, provided it is discussed in class or read through by the mistress. In a set of English compositions, for instance, the mistress might select five or six for careful correction; the rest she might merely read through without correcting, and mark, if necessary, on her impression of the work. She would note any prevailing faults in fact, style, or matter, and might comment on these when giving back the papers. The next week another five or six compositions would be corrected in detail, and so on; the form then files the exercises as directed by the mistress, and each girl has about three of her compositions fully corrected during the term.

Another method suitable for work in these subjects is to allow one week for the preparation of the question or essay, at the end of which schemes or headings of the answer would be sent in. These could be read through quickly, weak points underlined in red pencil or equivalent, and discussed at the next lesson, together with some amplification of the subject-matter, and then the essay might be written out in full if desired. This plan also gives scope for more oral work; one or two girls can be asked to expand their notes; others can criticise, comment, suggest; a general discussion or debate might follow, and for that week the written essay might be dispensed with.

It is desirable, as a rule, to take in and look over all work of this type, partly to ensure that every pupil produces something more or less adequate, and also because the effort entailed and the time spent on a difficult exercise deserve recognition and encouragement. But it should be realised clearly by all concerned that the mistress cannot and should not attempt to correct all English work in detail.

Occasionally, too, the pupils' time can be used more economically than is sometimes the case when long written homework exercises are set, by giving fifteen or twenty minutes at the beginning of a lesson to the answer in writing of some one question bearing on the work prepared. This gives practice for

work under something like examination conditions, and necessitates application, concentration, the quick arrangement of facts, and expression of ideas, and gives more scope for thoughtful work than is possible in the test of facts for class correction. These short answers can be read through quickly, marked on general grounds, and would not make so much demand on the mistress's time as the more lengthy homework exercise, and as a rule it would not be necessary or desirable to file these answers.

The arguments generally urged against such methods of filing papers as are here suggested do not seem very conclusive. They are usually to the effect that the girls would lose their papers, or would forget to file them; that the record of work done would be incomplete; that the pupils would not have all their work for reference and revision; that the written work as a whole would deteriorate in neatness and arrangement; that unless the girls have much practice in writing, and unless their exercises are carefully corrected, they will not stand so good a chance of passing their examinations. Most of these objections have been met already; careless girls, as it is, occasionally forget their exercise-books; the mistress can always insist that the paper work is done neatly whether for her own or for class correction; and a great deal of the work done by the average schoolgirl is not useful for reference, and is better destroyed at once, for it is neither helpful nor encouraging to a girl to look back continually at her own inferior work. Moreover, what is good and useful can always be filed.

The question of overlooking or correcting the note-book is rather different from that relating to the exercise-book. The aim of the mistress in this case is to train the girl to discriminate between the essential and the non-essential; to enable her to supplement her text-book by the additional information or detail supplied in the lesson, and to accustom her to arrange her notes so that the points stand out clearly and are easily accessible. The tendency of most schoolgirls is to write too much, to try to "take it all down"; and although this is always discouraged, unless the mistress is perpetually on the watch, some of the less clear-headed members of the form will try to fill their note-books with the words as they fall from their teacher's lips, intending afterwards to assimilate the substance at their leisure. This is, of course, harmful from every point of view; but, if the note-book is reserved strictly for notes—dictated, perhaps, at first in the junior forms to show what the taking of notes actually means, and later written in proper note form, after the mistress has finished

talking, and not while she is speaking, for only at the top of the school are girls capable of profiting from lessons in lecture form—then it is unnecessary, as a rule, for the mistress to take in the note-book for correction.

Difficult names and new words and terms will have been written on the blackboard, and by walking round the class, or by taking in the note-books of one or two girls occasionally, sufficient check is kept on this part of the work. It must be realised that the mistress will not necessarily correct everything that it is desirable for the pupil to write, though she may call for any part of any girl's work at any time; and, moreover, the pupil must learn to depend more on herself and less on her mistress than is often the case.

In one or more of these ways it has been found possible in some schools to reduce the written work of the girls and lighten the burden of correction for the teacher. The difficulty is an old one; the methods here suggested for meeting it lay no claim to novelty; they are merely a statement of some attempts which are being made to relieve pupils and mistresses from what often becomes an undue strain. For, in spite of much ventilation and discussion, the problem is not yet solved; the pupil sits up much too late, working hard all the evening, and the over-conscientious mistress wears herself out in body, mind, and spirit by spending innumerable hours over her pupils' exercises, to which they will scarcely give another glance. The girls—or, more correctly, their parents, for the girls accept the burden as inevitable—complain of the amount of homework and the late hours it involves; and quite rightly—for all children of school age should be in bed by nine o'clock at the latest. If anything can be done, then, to lessen this heavy out-of-school work, the experiment should be tried, for it is grievous to see the waste of time, energy, and strength that the correction of exercises invariably entails. As things are, written work and the correction of written work there must be, but we must see to it that neither one nor the other is so abused that evil outweighs good in the results obtained.

*An Introduction to German for Upper Forms and Evening Classes.* By Florence Ellis. vi+166 pp. (Dent.) 2s. 6d.—This is a course intended for students older than those using a "first book." A good feature is that new words are explained by reference to a picture vocabulary (Rippmann's), a better plan than that of explaining the unknown by the unknown! Is it not a pity to perpetuate "das Adjektiv," "Verben," "das Pronomen," in place of German names? Are the names of languages (p. 59) printed always with a small initial? We are pleased to see the terms "die Gegenwart (present)," but lament "das Perfekt," "das Imperfekt," "Konditionalis."

## PARENT-TEACHER ASSOCIATIONS.

By HILDA WILSON, M.A. (Lond.).

OF all the great movements that make the study of American education at once fascinating and stimulating to the English-woman, none, perhaps, promises greater good to childhood than the recently developed parents' associations. They are variously named parents' clubs, parent-teacher associations, home and school associations, and so on; but the idea is always the same: they are organisations that unite the parents of the children belonging to one school, and bring them into close contact with the school and the teachers, for the good of the children and of the community.

The model school attached to the education department of Chicago University claims to have the original parents' club, started on the plan and under the guidance of Prof. Dewey, then a member of the University faculty. The associations are therefore strong in Chicago, and I do not think many are to be found further west, except in the States of Oregon and Washington, where educational experiments arouse great interest and enthusiasm. The present statistics are of little value, however, since progress is rapid and sure; and English teachers will find chief interest in the principles involved, and in the various ways in which the associations are benefiting America.

Many English teachers must have felt an unpleasant shock when they heard or read the words, in a speech by one of the greatest of headmistresses, words distressing even if uttered, as they surely were, in jest: "It would be easy to educate children, were it not for their parents!" They made some of us realise how we cut off the parent from sharing in the child's school life, and how serious might be the moral and mental results of such a division.

A startling speech by the Hon. P. P. Claxton, United States Commissioner of Education, at the recent National Congress of Mothers and Parent-Teacher Associations, in Boston, showed a point of view exactly opposed to the English. The teacher has hindered the home influences, according to him. He declared roundly that no teacher can begin to educate a child in any real sense until she knows all his home circumstances, the history of his family, the health, disposition, and attainments of all his relations and progenitors to several generations. "For efficient work in the schoolroom, the teacher must know the life of the child outside the schoolroom, its home, its parents, their activities, the child's interests. He believed these should be brought into the schoolroom as raw material to be utilised in the

development of the child, that the work of the schoolroom should be related to, and should interpret, the life outside. . . . The mistake should not be made of educating the child away from his home, but back into the home."<sup>1</sup>

The speech made a profound impression, coming from whom it did; it was of a strength that would have made it almost ludicrous from a less responsible speaker. Nothing could set forth more clearly the first use of parent-teacher associations: to help the teacher to know the child. We English make tentative efforts in this direction; head-teachers and their secretaries are kept at work toiling over and tabulating facts extracted from the children themselves in most cases. The results are religiously preserved for the use of the "head," and of the Board of Education—both far less occupied with, or interested in, the child than is his class-teacher. So we do not get far. The class-teacher of sympathetic nature talks to the child, and learns a few facts—the size of his family, his home pleasures. But the child is not the best fount of information about himself. In proportion as he is wholesome in mind, and of wholesome stock, he will reveal little that his teacher should know; and he should neither know nor understand many of the important facts about himself and his environment which both parent and teacher should know and understand. And when the child is at all unwholesome, what pitfalls for the teacher! I shall never forget one girl who absorbed more than half the attention of a group of her teachers by her idleness, restlessness, unhealthy and untidy appearance for three or four years, during which she received much indulgence because of a report that she devoted her home hours to amusing a bed-ridden mother. Finally came the discovery that the mother was not only hale and hearty, but smart, well set up, and capable; and that she had been trusting to school and teachers to reform her incorrigible daughter!

On these grounds the most valuable work of the associations is the ordinary club meeting, at which parent and teacher meet as fellow-members, with very strong mutual interests. I was fortunately present at one of these periodical meetings, held by the parents' club of one of the practising schools attached to the Chicago Teachers' College. The proceedings were typical, not only of parents' clubs, but also of ordinary club meetings in American towns. It was notable that this was the case: that the members met as club members, not as members of a society bound to discussion of a limited range of subjects. The parents, very smartly dressed indeed, assembled about half-

<sup>1</sup> Report in *Child-Welfare Magazine*.

past three, and began by listening to some par songs by various classes. Then the children went, and a short business meeting was conducted by president and secretary in the usual manner. Some solos followed, and then an address from the secretary of the American Peace Association. He was very interesting and enthusiastic, and succeeded in winning over the mothers as a body, so that the club voted then and there to join his association.

But besides these more or less social meetings, the associations undertake many practical tasks for the good of the schools. At the Carl Schurtz High School, in Chicago, I found them in charge of the luncheon arrangements. There are about 1500 pupils to feed, most of whom only have a free half-hour for their lunch, so that it must be served without loss of time. School lunch arrangements out west are most attractive, and I had already found them organised by the domestic science department, by the school committees, and by the students themselves. Here the mothers' club engaged the staff, provided the food, sold it at rates that just covered expenses, and sent certain members each day to supervise and administer all arrangements.

In Boston I discovered how far and how deep the movement had gone; the National Congress of Mothers and Parent-teacher Associations was holding its meetings there, and the "child" was all to the fore. The Bostonians have organised these clubs to the utmost, combined them into a Boston "Home and School Association," and stated their ideals and objects in elaborate terms:—

"To improve conditions of child life in Boston, by fostering co-operation between the home and school, and by providing an opportunity for the study of child development, intellectual, moral, and physical; also by working constructively for the moral and physical development of the school district." This work is in the hands of several standing and other committees, each for a special task. One considers the further use of school buildings. This committee does not report this year, but the tendency of Americans to use their schools at all hours gives it plenty of scope. As in England, they are used for evening work, but also as social and neighbourhood centres, as branch libraries, and so on, for the benefit of the citizens who have paid for them.

The next committee, on vocational guidance, links the world-famous work of Meyer Blomfield (chairman of this committee) and his vocation bureau with the other tasks of the association; it also prepares the little monthly paper the *Home and School Newsletter*, which is the official organ of the whole association in Boston. The home and school visiting com-

mittee employs two visitors, who go to the children's homes at the request of the teachers, in poor districts, and give advice in difficult cases. One visitor made about 400 visits in one year, which varied from serious preventive work among girls, to calling "day after day for several weeks at half-past eight to speed a loitering scholar"! The school decoration committee does not report—perhaps it will be able to carry out in Boston a delightful plan from Chicago, where the advanced students at the Art Institute School design and execute large frescoes for the decoration of various city schools.

The anti-cigarette committee can of course teach us nothing, but that on children's reading has accomplished much good work. The chairman is the children's librarian of the Boston public library—the library adorned by Sargent and Abbey with some of the most wonderful decorations ever conceived for any building. This committee has made a list of the books actually in the public library which can be recommended for boys' and girls' home reading. It is not necessary to compile one of all books published, as this has been done with much care and completeness by the National Congress of Mothers' literature committee. Another committee of the Boston association has compiled a brief list of books and pamphlets for parents' reading, carefully classified and arranged. The theatre committee has reported in a vigorous pamphlet, and, with facts and statistics to prove its words, appeals to the parents to control the children in their incessant indulgence in doubtful amusements.

The most difficult side of the work of parents' associations at the present moment would seem to be the public one. The *Child-welfare Magazine* states that some associations have been led astray by the "politician," that American bugbear, and have thus lost their civic independence and power of right action. However that may be, the Boston secretary declares, rightly, that "a parents' association is fundamentally important as a civic body." The vice-president makes a good point when he directs attention to the growing complexity of the educational organism. This brings the danger that the people may lose interest in the schools—it is in America that this interest can be "lost"!—and that those in charge may acquire unconsciously the point of view of the bureaucrat, and become indifferent to the real needs of the children and of the community. It is to preserve or to promote a sympathetic and yet critical understanding of the complex work of public education officials that these organisations exist.

The plan of the parents' club has all the

simplicity of utter genius. To win the active help of the very people originally and ultimately and supremely interested in the children—how could a teacher have thought of such a thing!

## A SCHOOL WIRELESS INSTALLATION.

By H. MATTHEWS, B.Sc.

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SEVERAL schools have recently acquired the necessary apparatus for wireless telegraphy installations, and others, while realising the educational value and the general interest aroused thereby, discard the idea chiefly owing to the financial outlay. A receiving station has been in use at the above school for the last twelve months, the total outlay being approximately £1.

Unless one is prepared to spend a considerable time in learning to receive "Morse" at commercial speed, the majority of the messages will prove unintelligible; but in a few weeks it is easy to acquire a proficiency in reading to allow the slower radiograms to be understood. The latter are chiefly weather reports sent out by stations at Paris (wave-length 2000 metres), Norddeich (800 metres), Cleethorpes (4000 metres), and the Admiralty at Whitehall. The first is the easiest to read, and sends local weather conditions at 8 a.m., except Mondays; 10.49 a.m. the chief meteorological readings (height of barometer, force and direction of wind, &c.) for six stations embracing the Atlantic and Western Europe; and 3 p.m. another local report.

These reports are of special interest to those forms which are accustomed to record their own daily meteorological conditions. From the data, the isobars of an approaching cyclone or anticyclone may usually be recorded on blank maps cyclostyled for the purpose. The procedure is as follows:—10.40 a.m., call signal, "Paris Observatoire signaux horaires." Then 10.45, 10.47, 10.49 are signalled. Immediately after, "B.C.M." (Bureau Central Météorologique), "R. 54xxx., V. 441644, O. 521854, C. 561835, H. 592432, S. 67204, Dépression Irlande et Iles Britanniques, forte pression nord Europe."

The letters designate the stations Reikjavik, Valentia, Ouessant, Corogne, Horta, St. Pierre respectively. The first pair of numbers is the barometric height in millimetres, the 7 being omitted; the second pair the direction of wind, 0 to 32 round the compass; the last two being the force of wind and sea respectively, 0 calm and 9 gale. The whole is then repeated a little more quickly. A specimen of the local report

follows: "Paris—Vent 5 mètres, sud-sud-ouest décroît, pression 755 stationnaire ciel couvert."

At various times of the day Paris can be heard talking to Calais, Cherbourg, Rochefort, and their respective answering tunes detected, whilst about 9 p.m. a report containing general news is sent at a slow speed. With a very plaintive note Norddeich signals noon, and then gives a weather report in German for Western and Central Europe. This is slow enough to be taken by an amateur. Cleethorpes sends half-hourly signals with a note resembling a bugle, and also ten-minute weather reports at 10 a.m. and 10 p.m., at the rate of fifteen words per minute, which is less than commercial speed. Precisely at 11.30 p.m. Poldhu, on a wave of 2800 metres, sends out her call MPD, and continues her Transatlantic service for two or three hours.

As regards the apparatus, the following is essential, and most of it can be made in the laboratory in a few hours.

(a) THE AËRIAL.—If the school flagstaff is available, and is 50 to 60 ft. high, the simplest arrangement is two copper wires (18 gauge), spaced 6 ft. apart on stout bamboos, running to a tree or post 20 ft. above the ground, the lead in being double and taken from the higher end to the instruments on the ground floor, utilising about 400 ft. of wire. If space is limited, four wires may be arranged in parallel, spaced 3 ft. apart. A single porcelain insulator at each end is quite sufficient, and may be obtained from the Static Scientific Co., 237 Katherine Road, East Ham, E., whilst the insulators for the "lead in" may consist of glass tubes. The wire should be kept parallel with one or two light bamboos at intervals, and in every case the aërial wire tied or wired to them, not wound round them.

A high horizontal aërial, the lead being taken from the centre, gives excellent results.

(b) A FIXED CONDENSER of tinfoil and waxed paper, about six sheets, 4 in. by 3 in., made in the usual way. If the telephone be shunted round the condenser as recommended, the capacity of the latter makes a material difference, so that the requisite number of sheets should be determined by experiment.

(c) A TELEPHONE, watch pattern, about 150 ohms resistance, which can be obtained from most dealers for 6s. 6d. The telephone usually sold for wireless work has a resistance varying from 4000 to 8000 ohms, and is naturally expensive, but of the two detectors to be described the former requires a resistance of 150 ohms, and the latter answers well with either a high- or low-resistance telephone. Replacing the steel diaphragm of the 6s. 6d. telephone with a ferrotype plate does not

appear to increase its sensitiveness, as some aver.

(d) AN INDUCTANCE OR TUNING COIL, consisting of 1 lb. of No. 26 copper wire wound on a cylinder 5 in. in diameter and 2 ft. long. This should be brushed well with shellac varnish before and after winding; and an inch of the cotton or enamel insulation scraped off along the coil to allow a piece of brass, which slides on a square brass rod, to make good contact with the wire at any place. It is convenient to use a stout hollow cardboard cylinder, and to cut a hole of the same diameter in one of the wooden supports so that a second coil may slide inside if the apparatus be converted into a "loose coupler" at some future date. Vulcanite supports for the ends of the coil are unnecessary.

(e) A CRYSTAL DETECTOR.—This may be any contrivance by which two crystals are lightly pressed together by means of spring brass. A sensitive, but somewhat erratic, combination is a graphite pencil with galena, the latter being sensitive only in certain places, but the writer prefers bornite and zincite crystals, as, when once nicely adjusted, they need no attention for months. One should be careful to select a purple bornite crystal and a piece of reddish brown (not black) zincite, the sensitive points being found by trial. The crystals may be obtained from Messrs. Russell and Shaw, 11, John St., Theobald's Road, London, W.C., for 1s.

A convenient arrangement is to mount one crystal with fusible metal on a piece of slotted brass, so that when the terminal is loosened it may be moved laterally. The other crystal is fixed on the underside of a piece of sheet brass bent twice at right angles, so that the two crystals may be pressed together by a fine screw in a wooden support placed vertically above them.

(f) A metal plate, 4 ft. by 4 ft., buried in damp earth, and connected, if possible, to a water-pipe. When not in use, the aerial should be connected directly with the earth as a protection against lightning.

A good way to connect up the instruments is shown in the diagram (Fig. 1).

Should trouble arise with two or more stations "jamming" each other, the difficulty may be overcome by adopting a loose coupler and a variable condenser.

A licence is necessary to conduct experiments in radiography, and may be obtained gratis from the Postmaster-General, whilst a useful asset is "The Handbook for Wireless Telegraph Operators" (Messrs. Wyman, 3d.). This contains the international Morse code and characters peculiar to the French and German

languages. Each letter must be memorised by sound before any progress can be made. A buzzer, or an electric bell with hammer removed, is almost essential for this purpose.

Perhaps the best way to adjust the apparatus for receiving is to choose a time when Paris is known to be sending, say at 10.50 a.m. Move the slider up and down, at the same time making contact with the crystals by hand. One will soon be rewarded with hearing the dots and dashes, and the slides should then be focussed to obtain the sharpest sound. Eiffel Tower may often be heard a foot or so from the receiver. After the first message has

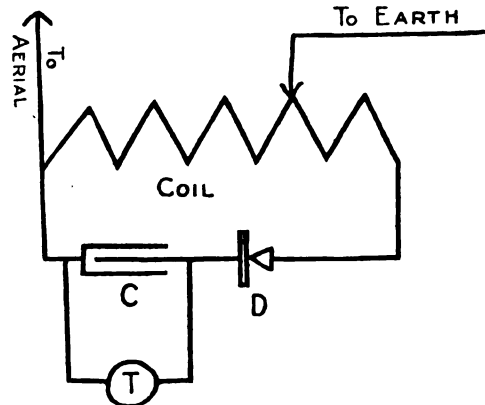


FIG. 1.—C, condenser; T, telephone; D, detector.

been taken, a feeling akin to the immortal Micawber is experienced: one never knows when one may intercept a storm warning from the Frisian Islands, or hear a faint tinkle from far-off Tunis.

### SHORTHAND AND TYPEWRITING IN SECONDARY SCHOOLS.

By FRED CHARLES, B.A.

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AT the present time there is much discussion with regard to the training of girls for commercial and secretarial appointments; all are agreed that two of the necessary accomplishments of a well-trained secretary or clerk are shorthand and typewriting, but as to where these accomplishments should be acquired there is no such agreement. The period of education to which they belong is also a matter of difference of opinion. Some maintain that they are educative and should rightly find their place in the secondary-school curriculum; others that, though they are not educative, yet they should have a place in the secondary school; and still others who consider that they are technical arts and should

not, therefore, encroach upon the time given to education in the secondary schools, but that they should be relegated to a special school.

What, then, are their claims to be considered educative? What are the virtues that they can be held to cultivate? What are the mental or moral qualities that they bring out? There appears to be but one, and that is accuracy. There is no doubt that accuracy and neatness are admirably tested, as is also forethought, by the one or the other. But is this a sufficient reason for giving to them the time that is necessary to secure proficiency in them? Both require a thoroughly good previous training in English, or the language concerned, whatever it may be, and they can then be used to test the accuracy of that knowledge.

Shorthand is mainly a matter of memory; understanding does not play a large part in the learning of it. Provided a boy, or girl, has a good eye for minute differences in form, and can remember to associate certain forms with certain sounds, he is on the highway to learning to write, read, and use shorthand to advantage. Given a poor eye for form and a bad memory for it, it is almost impossible to make any headway at all.

Typewriting, on the other hand, is mainly mechanical. First comes a kind of finger drill, comparable to the muscle drill of the telegraph operator; this accustoms the operator to find, without looking, the correct keys, and continual use gives facility. Reason and common-sense come in only when tabulation and arrangement are concerned.

Subjects in which memory and mechanical skill are of more importance than comprehension or clear mental understanding answer much more readily to intensive treatment than those dependent on reasoning, or those in which scientific principles have to be grasped and ideas acquired, understood, and made their own by the students.

Thus it appears that in the study of both subjects a lesson every day becomes a necessity if the effect of one is not to be lost before the next is taken. In the one case memory, and in the other mechanical skill, requires that constant repetition be practised. If, then, shorthand and typewriting are to form part of the secondary-school curriculum, at least two periods a day must be set apart for them.

Next consider whether there are any other reasons for including shorthand and typewriting in the syllabus of subjects for secondary schools. The most powerful reason of all is probably a material or economic one. There is undoubtedly a demand for them, and a demand that cannot afford to be ignored by educationists. Parents and children both, at

the present day, look to the schools to teach something of definite and immediate commercial value, and certainly, in the case of girls, the easiest something is shorthand. It is, however, on their part a policy that might well be described as "penny wise and pound foolish," for the shorthand acquired by immature students in their school-days is not such as to render them even capable and intelligent shorthand typists. The time that has to be given to the mechanical subjects is taken from those more important to mental training, and the result is an uneducated shorthand typist whose mental equipment is defective, a commodity that in the clerical market may obtain ten or even twelve shillings a week, irritate a number of employers, and eventually either sink or swim, according to whether he, or she, is unable or able to learn from the vexation of an angered employer. It is this very moderate amount of shorthand, euphemistically called commercial education, that has brought commercial education into disrepute in this country.

Some parents may, and do, require that their children be taught shorthand before they reach the age of sixteen, but educationists, when they consider only the educational aspects of the question, agree that specialisation should not begin until the age of sixteen is reached. After sixteen, if the specialised education required is commercial, shorthand and typewriting should be included, and at least two periods a day should be given to them, and they should be correlated with other subjects important in the world of commerce; for instance, the history and conditions of the various markets.

Whether this specialised work can or cannot be done in the secondary schools is a point on which there is not yet any agreement. The two obvious advantages of doing it in the secondary schools are that the children retain the good influence of the life of the secondary school in which they have grown up, and of its teachers who know them at the most impressionable part, or, at any rate, at a most important part, of their school life; and also the schools retain the good influence and great help of a number of their oldest and presumably, since they have been in the school a long time, their best pupils.

More is heard of the former reason than the latter, for there seems no doubt that the latter, while it is very real and of considerable importance to the schools, is a little selfish in that it considers the good of the schools rather than the good of the scholars. It can, of course, be said, and rightly so, that the later years, the years in the top form, the years in which the



pupil has a certain amount of responsibility and authority, are the years in which he, or she, derives most benefit from school life.

There are, however, very real educational and administrative difficulties in establishing at the top of the secondary school a group specialising in commercial subjects. If there is one specialised group, should there not be others? The result would be sixth classical, sixth modern, sixth commercial, sixth engineering, sixth technical, and no one school would be large enough for them to be really effective. The French and German of the modern sixth, adapted, say, to the requirements of the Army or the Civil Service examinations, would be quite unsuitable for the commercial sixth. The individual pupils would not have the stimulus of competition, and the teacher would have considerable difficulty in differentiating continually, rapidly, and effectively between the requirements of his several forms. An administrative difficulty would undoubtedly be the cost; typewriters are continually changing; pupils must see and use modern machines, even though they learn upon old ones; equipment must always be up-to-date; a pupil who has no knowledge of the use or adjustment of a totaliser is obviously at a disadvantage, as is a pupil who considers that it is impossible to type the entries in a bound ledger.

These are but some of the difficulties; there are others that are as great or greater. Most masters in secondary schools in which shorthand has been taught know the extreme difficulty of staffing; the practical schoolmasters who are also practical stenographers are very few. The visiting shorthand teacher is generally a person to be avoided at all cost; a good schoolmaster with an indifferent knowledge of shorthand is undoubtedly preferable; he may not do much good, but he certainly does no harm. But the teacher of shorthand is the least difficult to find of all the teachers of commercial subjects. For typewriting an efficient teacher must have an expert knowledge of the machines, not only of the make in use, but also of others. He must be able to do his own and his pupils' "running repairs"; and as he is not likely to be qualified to teach subjects other than his own, there is not likely to be enough for him to do in a secondary school of ordinary size. Efficient teachers of other commercial subjects are even more difficult to find.

In large towns, and, indeed, in all but the very small, these difficulties can be met, and with reasonable success, in a central school of commerce. The children of the few parents who will not listen to advice, and insist, whatever schoolmasters and mistresses may say, that their children must learn shorthand before they reach sixteen years of age, might

be drafted into a special preparatory class in that central school of commerce; the great majority would remain in the ordinary secondary school until they had passed some standard examination that would be evidence of a sound secondary education, and would then be transferred to the central institution, where in, say, a year they could acquire the necessary proficiency in shorthand and typewriting, as well as an acquaintance with the technical information and the practical details—a knowledge that differentiates the intelligent clerk, who need ask very few questions, from the inefficient one who requires his employer to spell all the proper names, to tell him the counties or the postal districts, as well as the methods of address and the stamps required for his correspondence.

The difficulties of influence would be minimised by running the school of commerce on secondary-school lines; if a close relationship between it and the secondary schools were maintained so that the teachers in the central school and the secondary schools were well known to one another, and if the pupils' records in the one were passed on to the other, the central school would become little more than a form of specialists from all the secondary schools in its district. It is true that the personal influence of the pupils in their former schools would be lost to those schools unless former scholars' associations could be brought into much closer touch with the everyday life of the schools.

The difficulties of staffing and equipment would disappear; specialists could be appointed, and equipment kept thoroughly up to date.

One other point is worth careful consideration. In some of the progressive towns of the United States a plan has been devised by which the schools and the employers work in much closer union than any known in this country. A half-time system exists by which pupils at an engineering school, for example, spend part of their time with an engineering firm and part at the school. A firm has, say, two apprentices; one spends from Monday to Friday at the school, the other at the works; on Saturday both are at the works; the next week they interchange; since both are at the works on Saturday, the second can continue the practical work of the first without loss of time and without unnecessary break.

Even though such a system as this might not, perhaps would not, appeal to the commercial men of London, it would no doubt be possible for a central school of commerce to keep in touch with them in a way that is quite impracticable for the headmasters and head-mistresses of a variety of schools. The

employers on their side would without doubt much appreciate the facility of being able at a moment's notice to obtain the services of a well-trained and efficient clerk or shorthand typist, the whole of whose school record could at once be communicated to him. At the present time a large number of employers fill their vacancies in this way, and, in the experience of the writer, there are far more appointments available than there are qualified pupils to fill them.

## THE STATE AND THE SCHOOL.

By J. S. THORNTON, B.A.

SIR ROLAND WILSON, in his treatise entitled "The Province of the State," published two years ago, has given all thoughtful educators much to ponder over.

Arguing in the manner of Hobbes or Bentham, he urges that the only valid reason for maintaining a State, or, in other words, for entrusting any set of people with a monopoly of public force, is the certainty of continual strife and generally triumphant injustice, if every man were to be judge in his own cause. He shows in detail that from this idea of the strife and generally triumphant injustice, it follows that we must have judicial tribunals, a police force, armaments, a Foreign Office and diplomatic service, prisons and a legislature. But when it is affirmed that decrease in crime is directly due to the increased public expenditure on education, and that the State is therefore justified in taking education into its own hands, he demurs. As a scientific lawyer he is able to point to a long list (pp. 77, 78) of legal and administrative reforms (not to speak of the zeal for social improvement acting through innumerable unofficial channels), to which the decrease in crime must rather be assigned.

He does not, of course, deny the good of all this interest in education, in whatever channel it flows; but with the good has come evil of the gravest kind, which might have been avoided had all this energy been directed into the right channel, instead of the wrong, into the channel of voluntary, and therefore varied, enterprise and not that of enforced uniformity. He is, in fact, as convinced a voluntary as the Nonconformists were two generations ago, and looks forward in the future to the liberation of education from State patronage and control.

He holds it to be no reason for reticence on his part that modern States with one consent have taken the wrong turning in their plans for education. Rather the contrary. "Much is gained by knowing the worst." We can then adjust our plans to the real situation, discover palliatives for what we cannot cure, and

then turn our energies in more hopeful directions (p. 304). All this is somewhat startling from one who is so advanced a Liberal as to be a member of the Land Nationalisation Society (though differing from that society in some details).

Sir Roland himself suggests no palliative for the evils he fears. He is too much occupied with his main theme for that. But the germs of one may be extracted from the definition of a national system of education which Lord Haldane gave not long ago in an article contributed to the *Nation* (April 12), the more especially as the plans he lightly sketches there have for at least two generations formed the basis of State systems in three or four countries abroad, where the love of liberty is as keen as in our own land.<sup>1</sup> The essence of a State system, Lord Haldane says, is that in a matter of such vital concern the State shall see to it that every citizen, whatever his station in life, shall have the education suited to his needs; and, to that end, shall protect the community from education by the unfit. He seems to be indifferent who provides the supply so long as the supply is good and sufficient. He then proceeds to speak of the local authority and the *properly qualified* individual as co-ordinate providers of the education required, and claims for both a reasonable freedom. Bureaucratic education is a thing he wishes to provide against.

In all this there are two things not often met with: (1) Lord Haldane *defines* what he means by a State system of education. Most of us, when asked for a definition, are not ready with one; or, if pressed, produce one which is at once seen, directly it appears in black and white, to be open to grave objection. That is to say, we are spending tens of millions a year without any clear idea of the means of arriving at our goal; and this is true not only of the man in the street, but of some who are in the foremost ranks of educational activity. When the meeting at the Society of Arts took place, at which the Girls' Public Day School Company was turned into a trust, the late Sir Wm. Bousfield, speaking for the council of the company, explained the reasons for the step and claimed that the schools now became for the first time a part of the national system. He was somewhat confused when asked for his definition of such a system, nor did any of his colleagues or the learned K.C. in the chair come to his assistance. Everyone, they thought, knew what a national system was: it needed no definition. But in the light of Lord Haldane's definition we see that the G.P.D.S. Co., conducted as it always had been and

<sup>1</sup> See Special Reports on Educational Subjects, vol. i., pp. 587-614; and the whole of vol. xvii.

was likely to be, was just as much entitled as the G.P.D.S. Trust to a place in a national system of education. The change was really due to the Board of Education; and the whole incident is a striking instance of the ease with which bureaucratic influences, without any warrant from the law of the land, can replace "varied enterprise" by "enforced uniformity"—can, by confining State effort to fewer school-types, depress and sometimes extinguish all other types, and so lead, in Sir Roland's words, to a "lack of that rich variety of character and talent, which is the fruit of free experiment in education and one of the most valuable assets a nation can possess." We need more types of schools, instead of fewer, if, as Mr. Sidney Webb affirms, our provision of new schools in the last twenty years has resulted in a "series of misfits," so that it becomes our next duty to provide "more accurately fitting garments." If the history of education can suggest any palliative, any counteracting influence, ready to act automatically and keep the balance even, so as to affect all educational work from its very beginning and secure to it a richer all-round development, it is high time such a remedy were applied.

(2) It is not surprising that Lord Haldane, with such an illuminating definition to guide him, should stand apart from most other writers in placing the qualified individual alongside the local authority as one of the chief providers of such education as the State can approve. But it is quite impossible from his brief definition to ascertain either to what extent he hopes to use this particular agency or whether he is satisfied that after five years' experience only two per cent. of our recognised secondary schools should be of this kind.<sup>2</sup> In Ireland, where the State does not require the individual schoolmaster to make his bricks without straw, the bulk of the secondary schools are of this type, though there are, or were, some features in the State management of the schools which sadly mar their full success. In Denmark and Norway, in Sweden and Finland, half the secondary schools (if we take one country with another) are in the hands of individuals who conform to State standards of efficiency, but have a much larger liberty than is granted to schools for which the State is entirely responsible.

If it be asked what are the results in the North of Europe of this intimate blending for a couple of generations of collectivism and individualism in the work of education, the answer, drawn from these four parallel sets of instances, each springing out of varying political conditions, is this—that the two kinds

of schools, the merits and defects of which seldom coincide, act and react upon one another to the good of both; that in passing from one country to another, we see that the greater or the smaller number of these freer and more varied schools brings with it respectively a decrease or increase in the rigidity of the State control; that all along the line the State-approved individual, notwithstanding his financial disadvantages, has through his greater freedom been the chief author of the larger, far-reaching reforms of the last fifty years—reforms which, after due trial, have passed into every school of the land.

One kind of school of an entirely new type, due in its inception and every stage of its progress to individual agency, has won warm approval and close imitation amongst the friends of popular education both in England and elsewhere. I mean the People's High Schools, modest residential colleges for adults of all classes from the age of eighteen to twenty-five and upwards. These in course of time have furnished the two Houses of Parliament in Denmark with 30 per cent. of their members; and by the activities their old pupils have set in motion account for something like half of the country's exports. Their success is due in no small degree to their freedom. They are inspected by the State; but have none of the interference Lord Haldane deprecates, the inspection being confined mainly to ascertaining whether the schools give the State full value for the modest sums of money expended on them. I mention all this in order to show that this particular wing of a fully equipped educational army has a distinctly democratic side to it. The best education possible is essential to democracy; and without the measure of mingled freedom and efficiency here indicated, the best education cannot exist.

This then is the palliative for the evils Sir Roland Wilson fears—the union in one harmonious system of collectivist and individual effort in our educational work—something very different from what we have in England to-day. In this way collectivism in education is lifted to a higher level; takes up into itself new meanings; has a nobler spirit breathed into it and acquires a subtler, more potent and beneficent force. How all this is done cannot and need not be described here, as it is fully set forth in the Special Reports. Mr. Lewis Paton a few months ago reminded us it was no easy task; but that if other nations had long ago solved the problem, there could be no real obstacle in the way. Personality is the thing that really tells in education; and the hindrances to the development of personality must be resolutely cleared out of the way.

<sup>2</sup> See the Board of Education's "List of Secondary Schools Recognised as Efficient," 1913. *gd.*

## THE SECONDARY EDUCATION OF GIRLS IN PRUSSIA.<sup>1</sup>

By MARK P. MAYO, B.A.  
Nottingham High School.

### II.

THE FRAUENSCHULE, in many ways the most interesting branch of this complex organisation, can be entered by those who have passed out of the top form of any Höhere Mädchenschule. The course extends over two years, and, while "continuing, widening, and deepening" the education of the high school, aims at preparing young women for their duties in life as mothers and managers of the household, or to become instructors in household management, nursery governesses, or teachers in a kindergarten. The course embraces the following branches of study:—

(a) *Compulsory*.—Pedagogics, attendance and help in the kindergarten.

(b) *Optional*.—Domestic economy (theoretical and practical housekeeping; practical courses in cooking and dietetics; the cost and preparation of food for adults, children, and invalids; the orderly arrangement of housework; washing, ironing, and cleaning; decorations; social life; the management of servants and other duties of the housewife). Needlework (cutting-out, making and mending linen and clothes, &c., &c.). Household accounts (the elements of bookkeeping, business letters, management of property, &c., &c.). Hygiene and child-management (practical exercises in Kinderhort and crèche; theoretical instruction concerning the body in health and sickness; the nursing of invalids and children; the commonest diseases, especially of children; ambulance work and first aid; epidemics and the measures to be taken against them; food; hygiene). Civics and political economy (the family; local authorities; the State; administration; the Constitution; taxation; illness, accident, and invalid insurance; the domestic and legal position of the wife; her social duties and pleasures; domestic work; the production and distribution of wealth; money transactions; the professions; philanthropic institutions, &c., &c.). Teaching methods (theoretical and practical).

(c) *Additional Optional Subjects* (general education, but where possible treated chiefly in respect to their bearing on daily life in society or the home).—Religion, German literature, French, English, Italian, Latin, history, geography, the history of art, natural science (dietetics, &c.), arithmetic, mathematics, gymnastics, drawing and painting, singing.

(One or two lessons a week in each of the subjects chosen.)

At the end of the second year certificates are delivered to those students who have regularly attended at least twelve lessons a week. An attendance at more than thirty lessons is not allowed. It is manifest from the wide range of optional subjects that courses can be arranged to suit the individual requirements of each pupil, and great trouble is taken by the director to meet the wishes of parents in respect to the course of study that they may wish their daughters to pursue. Some of the pupils specialise in household subjects and qualify by examination as teachers of domestic economy (Hauswirtschaftslehrerinnen). Others take in the second year a special course in the kindergarten. After passing an examination, these receive a certificate qualifying them for service in small Kindergärten or as nursery governesses. Others again will take a course where special attention is given to subjects a knowledge of which is useful to those engaged in philanthropic work.

The Frauenschule always has a well-fitted kitchen, store-rooms, scullery, wash-house, and ironing-room. A qualified teacher of cooking superintends the work of the girls, a blackboard and wall-charts being extensively used. The writer has seen several cooking lessons in progress, and, though by no means claiming to be an expert in these matters, he was on each occasion impressed by the smart up-to-date methods employed, the order and cleanliness that prevailed, the intelligent application of the theories expounded, the appetising odour and appearance of the dishes, and not least by the gusto with which they were submitted to the supreme test by those who had prepared them.

Though the Frauenschule is a new institution, there are already a large number in existence. So far, however, they are carried on in every case at a considerable pecuniary loss.

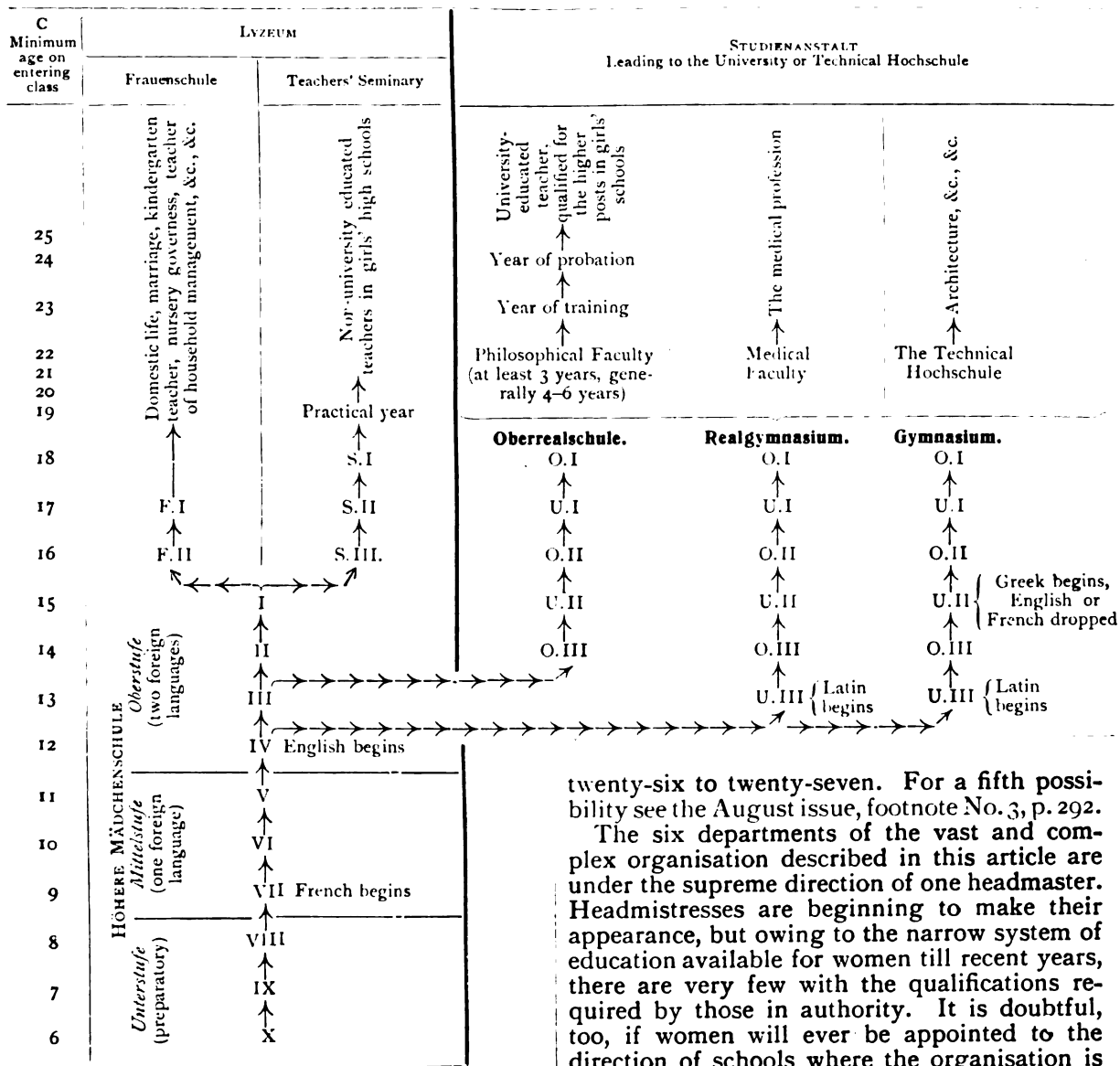
The MITTELSCHULE, used as a practising school by the fourth-year students of the Teachers' Seminary, and the KINDERGARTEN, where the pupils of the Frauenschule gain some experience in the management and teaching of young children, require no special mention beyond the references already made to them.

Table C is an attempt at giving a comprehensive survey of the different educational "routes" open to a girl in such a school as the Augusta Schule from her seventh year in the Höhere Mädchenschule onwards. At present only one of the higher literary courses of the Studienanstalt (Oberrealschulkursus, Realgymnasialkursus, Gymnasialkursus) is avail-

<sup>1</sup> Continued from p. 202.

able in each school that has adopted the full scheme outlined above. Possibly, in time alternative courses, as in the boys' "Reform" schools, will be introduced.<sup>2</sup>

thirteen, branching off then to a higher secondary course leading to the university at nineteen and to the profession of doctor, architect, or schoolmistress (higher ranks) at



It will be seen that the four possibilities are : (a) a high-school education ending at the age of sixteen or thereabouts; (b) the same, supplemented by a Frauenschul course ending at eighteen; (c) the same again, supplemented by a four years' course in the Teachers' Seminary, leading at the age of twenty to the lower ranks of the secondary teaching profession; (d) a high-school education up to the age of

twenty-six to twenty-seven. For a fifth possibility see the August issue, footnote No. 3, p. 292.

The six departments of the vast and complex organisation described in this article are under the supreme direction of one headmaster. Headmistresses are beginning to make their appearance, but owing to the narrow system of education available for women till recent years, there are very few with the qualifications required by those in authority. It is doubtful, too, if women will ever be appointed to the direction of schools where the organisation is so vast. In the Königliche Augusta Schule there are altogether some thirty classes with a total of about 850 teaching periods a week, divided amongst some thirty-eight to forty regular teachers.

The education of girls has progressed by leaps and bounds since the raising of the standard from elementary to secondary and the admission of women as regular students to the universities in 1908. In 1911 there were 233 public Lyzeen in Prussia. Seventy-three of these have seminaries for the training of

<sup>2</sup> See the article on Reform schools in Germany in the May number of THE SCHOOL WORLD, p. 163.

teachers, thirty are Oberlyzeen, and twenty-nine have the higher literary side preparing for entrance to the universities. Of these two have the course corresponding to that of a boys' Gymnasium, three that of the Oberrealschule. The rest are organised as Realgymnasien. The girls are generally superior to the boys in modern languages, but inferior in mathematics and those subjects that require a more logical treatment. The atmosphere of work, the enthusiasm for achieving great results, the devotion and earnestness of the women teachers, are everywhere strikingly in evidence. There are great openings for women in Germany at present. They are being increasingly admitted to the professions hitherto confined to men. The exhibition of women's work held in Berlin last year, which caused such a widespread interest, at least in feminine circles, was a remarkable proof of the progress that women have already made. It is objected by some that the inevitable consequences of this advance will be an increase of unemployment amongst men and a consequent falling-off in the marriage and birth-rates. Many, therefore, view the movement with misgiving, and are inclined to hold that, for the good of the German nation, the restriction of the woman to her duties of *Hausfrau*, with (in the words of an exalted personage) the three occupations of "*Kirche, Kinder, Küche*," was the best system after all. However this may be, German women have reason to be proud of the tremendous advance they have made in the domain of secondary education and of university studies.

#### PERSONAL PARAGRAPHS.

AT the prize distribution at Guildford Grammar School Lord Rosebery recalled one of the school statutes framed some three hundred years ago: "Absence from church or like assemblies without just cause was to be punished. Honesty and cleanness of life, gentle decent speech, humility, courtesy, and good manners were to be established by all good means." He took it that the men of the early seventeenth century emphasised courtesy and good manners because they themselves were models of courtesy and good manners, and because they realised their enormous importance in the common transactions of life. Lord Rosebery concluded by saying that manners were not easily taught except by example, and asking everybody to bear in mind the enormous value of manners.

\* \* \*

SIR THOMAS DYKE ACLAND, when distributing the prizes at Blundell's School, Tiverton,

congratulated Mr. Francis on being the senior headmaster in England. He has been at Blundell's nearly forty years, and everyone connected with the school appreciates the ability, zeal, generosity, and self-sacrifice by which his career has been distinguished.

\* \* \*

APPARENTLY a necessary part of the headmaster's report at these annual assemblies is a list of school successes during the past year. Such lists suggest that there are still many schools at which very young pupils take external examinations, or at which the education is of a very low standard indeed. Certificates awarded on the results of the Cambridge preliminary and the junior certificates of the College of Preceptors should scarcely find a place in the list of honours obtained by the pupils of a large boys' school. Their inclusion savours of the advertising spirit that draws the children of ignorant parents into establishments that cannot rightly be called educational.

\* \* \*

JUDGING from announcements and addresses made at various speech days, buildings are still regarded as the best educational investment of the present day. One seldom, if ever, finds an announcement that the governors are setting aside a few thousand pounds to be spent in increasing the salaries or prospects of the staff. Among the many schools at which considerable sums are being spent on buildings are Brighton College, Ardingly College, and Oakham School.

\* \* \*

MR. PATON, high master of Manchester Grammar School, and Dr. Scott—the Rev. Dr. Scott—urged parents not to take their boys away from school because advantageous openings were pressed upon them by employers. Dr. Scott commented on the large number of vacancies that there have been for boys during the last few months, a state of affairs that has doubtless come to the notice of most of the London headmasters.

\* \* \*

A LARGE number of English teachers of modern languages go abroad and follow holiday courses during their summer holidays; they form a useful study for an interested spectator. Generalisations are dangerous, but from observation of three such courses two conclusions seem to be incapable of contradiction. The women are more in earnest than the men; more of them are attending, and when there they work harder and more effectively than the men. The German teachers attending the

courses as students in France work harder than the English.

\* \* \*

CERTAIN public bodies who aid their teachers to go to the foreign holiday courses appear to have little trust in the teachers they send. They demand statements from the teachers, certificates from the directors of the course, and there is one large local authority that goes so far as to require from the director of the course a report showing the actual number of attendances of the individual teachers from that authority and the number of times that each could have attended. Such a requirement suggests that an English authority does not trust its selected teachers, and certainly creates a very bad impression of English teachers, and of the conditions under which they work, among the professors who conduct the courses and other foreign teachers who know of the arrangement.

\* \* \*

MR. T. E. PAGE, for many years a master at Charterhouse, has been made a governor of Charterhouse. Mr. Page now holds, among his many other educational activities, the vice-chairmanship of the Federal Council of Associations of Teachers in Secondary Schools. The council has just issued a memorandum upon a national system of education on a new system of State grants.

\* \* \*

MR. LEWIS MARSH, a master at the City of London School, has been appointed headmaster of the Ealing County Secondary School.

\* \* \*

TWO teachers, Mr. and Mrs. William Shaw, of New Barnet, have recently celebrated their golden wedding. Their united years of service in the teaching profession amount to one hundred.

\* \* \*

THE REV. J. B. RYLEY is retiring from the headmastership of Emanuel School, Wandsworth, in December. Mr. Ryley was formerly headmaster of Sandwich Grammar School, to which he was appointed from St. Olave's Grammar School, London.

\* \* \*

MR. JAMES RENNIE has completed forty years' service in the work of education in Oldham. Mr. Rennie, who is a Scotchman by birth, was formerly the secretary of the School Board of Oldham, and holds an honoured place among the education officers of the country. He has been president of the National Association of Education Officers, president of the Union of Lancashire and

Cheshire Institutes, and chairman of the Association of Education Secretaries.

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MR. JAMES HOUGH, second master at Brentwood Grammar School, Essex, has been appointed headmaster of the same school in succession to the Rev. E. Bean.

ONLOOKER.

## THE KINEMATOGRAPH IN EDUCATION.

A CIRCULAR signed by Cardinal Bourne, the Bishop of Birmingham, the Rev. F. B. Meyer, Sir Albert Rollit, the Earl of Meath, Sir James Yoxall, M.P., and the headmasters of Eton, Winchester, and Rugby, relating to the use of the kinematograph in education, has been sent out to the local educational authorities of the United Kingdom by Mr. A. P. Graves, chairman of the representative managers of the L.C.C. elementary schools. The circular points out that the position of the kinematograph as a means of popular entertainment and instruction is now so firmly established that it would be quite out of the question to attempt to suppress it, even though the abuses to which it has given rise are thought by many to outweigh the benefits which it confers. That these abuses, even in those countries where popular education may be regarded as being in many respects in advance of our own, constitute a grave danger to public morality, has been abundantly proved from special evidence supplied to Mr. Graves.

To neglect the kinematograph as an educational instrument because it has had an evil influence is altogether a mistake. There can be no doubt that moving pictures are of extraordinary importance as a means of education; but, at the same time, effective regulations are required in order thus to utilise them to a greater degree, and yet with fuller safeguards than has so far been done. Several conferences have therefore recommended, in addition to the necessary regulations of censorship, the formation of corporations, which, co-operating with the owners of kinematographs, societies, schools, &c., should make every endeavour to utilise the kinematograph from an essentially educational point of view.

Great as may be the usefulness of moving pictures, when not only carefully selected, but also carefully restricted in frequency, careless or excessive use of them must be, from an educational point of view, disastrous. Young minds do not learn, in any true sense of the word, by having information, unselected and heterogeneous, poured in upon them, but by assimilating what is given them by an active process analogous to physical digestion, and, to insure that this process is made possible, great care must be exercised, not only in the choosing of the films, but in the times of their exhibition.

Before, therefore, the kinematograph can be incorporated amongst our teaching apparatus, certain safeguards will have to be adopted; exciting scenes will have to be avoided; the films will have to be prepared

by educational experts; they must not be passed too rapidly before the children's eyes, and therefore only a limited number of them should be employed for a single lesson. Lessons illustrated by the kinematograph should not be given to any class more than once a week, and, in lessons on nature-study and science, the children's own powers of observation should not be interfered with by presentations of growth and change in vegetable and animal life, which have not, so far as possible, been followed by them. On the other hand, such presentations of growth and change may well be used for the purpose of summarising a series of observations or where observation is impossible.

### SECONDARY EDUCATION IN ENGLAND IN 1911-12.

THE following tables are taken from the publication of the Board of Education entitled "Statistics of Public Education in England and Wales. Part i. Educational Statistics, 1911-12" (Cd. 6034), from which source also the explanatory paragraphs have been abstracted.

A secondary school, in the sense in which the term is used in the Board's Regulations, must offer to each of its pupils a progressive course of general education (with the requisite organisation, curriculum, teaching staff, and equipment) of a kind and amount suitable for pupils of an age-range at least as wide as from twelve to seventeen. The provision, if any, made for pupils below the age of twelve must be similarly suitable, and in proper relation to the work done in the main portion of the school.

The Regulations also require that an adequate proportion of the pupils must remain at least four years in the school, and that an adequate proportion must also remain up to and beyond the age of sixteen; but these requirements may be reduced to three years and the age of fifteen respectively in the case of schools in rural areas and small towns, where such a course appears to the Board to be advantageous in view of local circumstances.

When the above conditions are satisfied, and the school has been inspected by the Board and is regarded as providing efficient instruction and possessing adequate premises, it is placed on the list of secondary schools recognised by the Board as efficient, described for brevity as "Secondary Schools on the Efficient List." If, in addition, certain further conditions are satisfied, *e.g.*, as to management, religious tests, financial position, scale of fees, &c., the school may, on the application of the body responsible for its conduct, be recognised as eligible for grant; the schools so recognised are described as "Schools on the Grant List." The volume does not include tables relating to the large number of secondary schools which have not been inspected by the Board, or to the schools which after inspection have not been recognised as efficient.

The schools are also classified in these tables under the headings of schools for boys, schools for girls,

and schools for boys and girls. A school for boys and girls means a school which is organised as a single whole, both the boys and the girls being under the charge of a single headmaster or headmistress, although the different sexes may be taught in separate classes, either throughout the whole school or in certain parts of it.

In the tables here reprinted only schools on the grant list are dealt with.

#### NUMBER OF SCHOOLS, TEACHERS, AND PUPILS.

		1911-12
1. Number of Schools on Last Day of School Year:—		
(a) For Boys	... ..	358
(b) For Girls	... ..	311
(c) For Boys and Girls	... ..	216
(d) Total	... ..	885
2. Number of Full-time Teachers:—		
(a) Men	... ..	4,584
(b) Women	... ..	4,542
(c) Total	... ..	9,126
3. Number of Part-time <sup>1</sup> Teachers		
	... ..	3,082
4. Number of Full-time Pupils, classified according to Age at the Beginning of the School Year:—		
(a) Boys:—		
(i) Under 12 years of age	... ..	21,752
(ii) 12 and under 16 years of age	... ..	54,833
(iii) 16 " 18 "	... ..	4,441
(iv) 18 years of age and above	... ..	357
(v) Total	... ..	81,383
(b) Girls:—		
(i) Under 12 years of age	... ..	17,675
(ii) 12 and under 16 years of age	... ..	43,790
(iii) 16 " 18 "	... ..	7,118
(iv) 18 years of age and above	... ..	639
(v) Total	... ..	69,222
(c) Total of (a) and (b):—		
(i) Under 12 years of age	... ..	39,427
(ii) 12 and under 16 years of age	... ..	98,623
(iii) 16 " 18 "	... ..	11,559
(iv) 18 years of age and above	... ..	996
(v) Total	... ..	150,605

#### SCHOOLS CLASSIFIED ACCORDING TO RESPONSIBLE BODY.

	1911-12
1. Council Schools	382
2. Girls' Public Day School Trust Schools	28
3. Roman Catholic Schools	43
4. Foundation and other Schools	427
5. Total	885

#### ORGANISATION AND AGE-RANGE OF SCHOOLS.

		1912
1. Number of Schools:—		
(a) Total	... ..	885
(b) Classified according to Sex of Pupils:—		
(i) Schools for Boys	... ..	358
(ii) Schools for Girls	... ..	311
(iii) Schools for Boys and Girls	... ..	216
(c) Classified according to whether Pupils were:—		
(i) Day Pupils only	... ..	574
(ii) Boarders only	... ..	3
(iii) Day Pupils and Boarders	... ..	308

<sup>1</sup> Part-time teachers are counted once for each school in which they served





average school lives and leaving ages for boys and girls respectively. No entry has been made under head 1 or head 2, as the case may be, where fewer than fifteen boys or fifteen girls respectively left during the period of three years to which the figures relate; and those schools which had not at the beginning of the period had a normal secondary-school existence of at least two years have been disregarded. These omissions have been made in order to prevent the statistics from being vitiated by the inclusion of figures relating to schools working under abnormal conditions, and the table is accordingly described as relating to "certain schools" only. Subject to these omissions, all the schools on the grant list for each of the three years included in the period have been taken into account, except a few schools for which complete figures are not obtainable.

1. Schools in which Boys were taught :—		1909-12
(a) Number of Schools taken into account		514
(b) Number of Schools in which the average length of School Life of Boys (omitting School Life below the age of 12) was—		
above 1½, but not above 2 years...	15	
" 2, " " 2½ " ...	156	
" 2½, " " 3 " ...	238	
" 3, " " 4 " ...	105	
" 4, " " 5 " ...	—	
" 5, " " 6 " ...	—	
(c) Number of Schools in which the average age at leaving of Boys who left after reaching 12 years of age was—		
14 and under 15 ...	49	
15 " " 15½ ...	204	
15½ " " 16 ...	195	
16 " " 16½ ...	57	
16½ " " 17 ...	7	
17 " " 18 ...	2	
18 " " 19 ...	—	
2. Schools in which Girls were taught :—		
(a) Number of Schools taken into account		444
(b) Number of Schools in which the average length of School Life of Girls (omitting School Life below the age of 12) was—		
above 1½, but not above 2 years...	9	
" 2, " " 2½ " ...	94	
" 2½, " " 3 " ...	189	
" 3, " " 4 " ...	151	
" 4, " " 5 " ...	1	
" 5, " " 6 " ...	—	
(c) Number of Schools in which the average age at leaving of Girls who left after reaching 12 years of age was—		
14 and under 15 ...	11	
15 " " 15½ ...	45	
15½ " " 16 ...	183	
16 " " 16½ ...	152	
16½ " " 17 ...	46	
17 " " 18 ...	7	
18 " " 19 ...	—	

SPECIALISED COURSES AND LANGUAGES IN CURRICULUM.

	Number of Schools
1. Total Number of Schools on Last Day of School Year ... ..	885
2. Particulars as to Certain Specialised Courses :—	
(a) Number of Schools which provided—	
(i) Commercial Courses :—	
(a) For Boys ... ..	9
(b) For Girls ... ..	11
(γ) For Boys and Girls ...	5

	Number of Schools
(ii) Domestic Economy Courses (Girls only) ... ..	14
(iii) Rural or Agricultural Courses :—	
(a) For Boys ... ..	16
(b) For Girls ... ..	—
(γ) For Boys and Girls ... ..	17
(iv) Engineering Courses (Boys only)	8
(b) Number of Schools which provided one or more of the above Courses ...	73
3. Number of Schools which included in the Curriculum—	
(a) Latin ... ..	757
(b) Greek ... ..	183
(c) French ... ..	879
(d) German ... ..	373
(e) Spanish ... ..	5
4. Number of Schools, classified according to the Languages included in the Curriculum :—	
(a) No Language ... ..	1
(b) One Language :—	
(i) Latin ... ..	3
(ii) French ... ..	100
(iii) German ... ..	1
(iv) Total ... ..	104
(c) Two Languages :—	
(i) Latin and French ... ..	359
(ii) Latin and German ... ..	1
(iii) French and German ... ..	26
(iv) Total ... ..	386
(d) Three Languages :—	
(i) Latin, Greek, and French ...	47
(ii) Latin, French, and German ...	207
(iii) Latin, French, and Spanish ...	2
(iv) Total ... ..	256
(e) Four Languages :—	
(i) Latin, Greek, French, and German... ..	135
(ii) Latin, French, German, and Spanish... ..	2
(iii) Total ... ..	137
(f) Five Languages :—	
Latin, Greek, French, German, and Spanish ... ..	1

A school is not included in the above table under head 2 (a) as providing a specialised course unless the course was fairly comprehensive in character and extended in duration, and was provided with the object of preparing pupils to take up a definite vocation on leaving school.

A school is not included under heads 3 and 4 of the table in respect of a language taught, outside the curriculum, to one or more individual pupils.

QUALIFICATIONS OF TEACHERS.

I.—FULL-TIME TEACHERS :—	1912
1. Graduates :—	
(a) Trained—	
(i) for Secondary-school Teaching :—	
(a) In recognised Courses ... ..	739
(b) Otherwise ... ..	105
(ii) For Kindergarten Teaching only ...	—
(iii) Otherwise ... ..	1,590
(iv) Total ... ..	2,434
(b) Not trained ... ..	2,977
(c) Total ... ..	5,411

2. Non-Graduates :—	1912
(a) Trained—	
(i) For Secondary-school Teaching :—	
(a) In recognised Courses ... ..	303
(b) Otherwise ... ..	25
(ii) For Kindergarten Teaching only ...	220
(iii) Otherwise ... ..	796
(iv) Total ... ..	1,344
(b) Not trained ... ..	2,371
(c) Total ... ..	3,715
3. Total of Heads 1 and 2 :—	
(a) Trained—	
(i) For Secondary-school Teaching :—	
(a) In recognised Courses ... ..	1,042
(b) Otherwise ... ..	130
(ii) For Kindergarten Teaching only ...	220
(iii) Otherwise ... ..	2,386
(iv) Total ... ..	3,778
(b) Not trained... ..	5,348
(c) Total... ..	9,126
4. Teachers who have had previous Teaching Experience in other Schools of—	
(a) At least one Year—	
(i) In Elementary Schools, but not in Secondary Schools on the Efficient List, or in Pupil-teacher Centres ..	1,371
(ii) In Secondary Schools on the Efficient List, or in Pupil-teacher Centres, but not in Elementary Schools ... ..	3,386
(iii) In Elementary Schools, and also of at least one year in Secondary Schools on the Efficient List, or in Pupil-teacher Centres ... ..	541
(iv) Otherwise ... ..	1,741
(v) Total ... ..	7,039
(b) Less than one Year, or none ... ..	2,087
(c) Total of (a) and (b) ... ..	9,126
II.—PART-TIME <sup>3</sup> TEACHERS ... ..	3,082

The teachers dealt with in the above table are divided into full-time and part-time teachers; for this purpose a teacher is regarded as "full-time" when his time is at the service of the secondary school (or schools where two secondary schools on the grant list are organically connected) during the whole of the normal working hours.

The term "graduate" is confined, for the purpose of this table, to men and women who have either actually taken a recognised degree of a university in Great Britain or Ireland, or have passed the final examination for such a degree.

The tables show the number of full-time teachers, whether graduates or non-graduates, who have been trained for teaching, whether (i) for secondary-school teaching, (ii) for kindergarten teaching only, or (iii) otherwise. Courses of training which lasted for less than a year, or were not satisfactorily completed, and courses which were confined to special subjects only, have not been taken into account. Sub-head (iii) relates only to teachers who have been trained in training colleges for elementary-school teachers, but teachers who have been trained in these

<sup>3</sup> Part-time teachers are counted once for each school in which they served. The figures include certain teachers who served for the remainder of their time in other institutions organically connected with the secondary schools viz. :—159 in 1912, and 156 in 1911.

colleges and also for secondary-school teaching are included under sub-head (i).

Under heads 4 (a), (ii), and (iii), which relate to previous teaching experience, no schools are taken into account which have not been recognised as eligible for grant, or otherwise efficient, by the Board of Education or by the Scotch Education Department.

EXAMINATIONS PASSED BY FULL-TIME PUPILS WHO LEFT DURING SCHOOL YEAR.

	Boys and Girls 1911-12 Total Per cent.	
1. Total Number of Pupils of 14 years of age and above who left during the year ...	34,008	100'0
2. Number who did not pass one of the Examinations included under Head 3 ...	27,549	81'01
3. Number who passed certain Examinations :—		
(a) Preliminary Examination for the Certificate ... ..	433	1'27
(b) University Senior Local Examinations :—		
(i) Oxford ... ..	2,660	7'82
(ii) Cambridge ... ..	1,583	4'65
(iii) Durham ... ..	—	—
(c) University Matriculation Examinations :—		
(i) Durham (Newcastle Division)... ..	31	0'09
(ii) London ... ..	635	1'87
(iii) Manchester, Liverpool, Leeds, and Sheffield (Joint Board) ... ..	356	1'05
(iv) Birmingham ... ..	34	0'10
(v) Bristol ... ..	12	0'04
(vi) Wales ... ..	—	—
(d) University Senior School Examinations :—		
(i) London ... ..	457	1'34
(ii) Manchester, Liverpool, Leeds, and Sheffield (Joint Board) ... ..	90	0'27
(iii) Birmingham ... ..	3	0'01
(e) Higher Certificate Examination of the Oxford and Cambridge Schools Examination Board ... ..	154	0'45
(f) University Higher Local Examinations :—		
(i) Oxford ... ..	5	0'01
(ii) Cambridge ... ..	6	0'02
(g) Other Examinations ... ..	—	—
(h) Total ... ..	6,459	18'99

The examinations taken into account are those which would ordinarily qualify a pupil for admission to a training college for elementary-school teachers; these examinations are invariably taken after the pupil has attained the age of fourteen. Where a pupil has passed more than one such examination only the last examination passed before leaving school is counted.

FURTHER EDUCATION OR OCCUPATION OF FULL-TIME PUPILS WHO LEFT DURING SCHOOL YEAR.

	Boys and Girls 1910-11 Total Per cent.	
1. Total Number of Pupils of 12 years of age and above who left the Schools to which the Statistics relate during the School Year	39,923	100'0
2. Number who went to a place of Full-time Further Education, viz. :—		
(a) Universities :—		
(i) Under 17 years of age... ..	114	0'3
(ii) 17 years of age and above ... ..	761	1'9

	Boys and Girls 1910-11	
	Total	Per cent.
(b) Other Secondary Schools :—		
(i) Schools on the Grant List ...	1,331	3·3
(ii) Other Schools on the Efficient List ...	262	0·6
(iii) Schools not on the Efficient List ...	1,583	4·1
(c) Other Institutions ...	2,723	6·8
(d) Total ...	6,774	17·0
3. Number who became Pupil-teachers, Student-teachers, "Uncertificated" <sup>4</sup> Teachers, or Supplementary Teachers, or who entered Training Colleges for Elementary-school Teachers ...	4,277	10·7
4. Number who entered upon some Professional, Commercial, or Clerical Occupation :—		
(a) Under 15 years of age ...	3,342	8·4
(b) 15 and under 16 years of age ...	4,382	11·0
(c) 16 " " 17 " " ...	3,639	9·1
(d) 17 years of age and above ...	1,738	4·3
(e) Total ...	13,101	32·8
5. Number who entered upon some Industrial or Manual Occupation :—		
(a) Under 15 years of age ...	1,332	3·3
(b) 15 and under 16 years of age ...	1,315	3·3
(c) 16 years of age and above ...	985	2·5
(d) Total ...	3,632	9·1
6. Number who entered upon some Agricultural or Rural Occupation :—		
(a) Under 15 years of age ...	471	1·2
(b) 15 and under 16 years of age ...	454	1·1
(c) 16 years of age and above ...	298	0·8
(d) Total ...	1,223	3·1
7. Number who went abroad ...	1,336	3·3
8. Residue :—		
(a) Remained at home ...	4,933	12·4
(b) Left owing to illness ...	467	1·2
(c) Known to have died ...	138	0·3
(d) Occupation unknown or unclassified ...	4,042	10·1
(e) Total ...	9,580	24·0

The object of the above table is to show what happened to pupils after leaving secondary schools on the grant list. Pupils who left before reaching the age of twelve are ignored for this purpose, and those who became pupil-teachers, or student-teachers, are treated as having left school at the dates on which their attendance as full-time pupils ceased.

The table is based upon information collected by the schools and recorded for each pupil in the admission registers. In those registers the school authorities are asked to state in the case of each pupil leaving to what place of further education (if any) he went, or what occupation he took up after leaving the school, but they are not required to keep the pupil under observation for this purpose for more than twelve months after he left the school. It must accordingly be remembered that the facts recorded relate in almost all cases only to the first occupation taken up, which may have been of a quite temporary nature, and may bear little or no relation to the career ultimately selected.

<sup>4</sup> The term "Uncertificated" is to be understood to include only teachers recognised as "uncertificated" under the Code of Regulations of the Board of Education (see Schedule I. C.). It does not include all teachers other than certificated teachers.

## HISTORY AND CURRENT EVENTS.

At a meeting this summer in London of the London All-India Moslem Society, his Highness the Aga Khan made a thoughtful and important speech on the aspirations of Moslems in international politics, and on their duties in internal affairs, especially in education and care for the poor. The whole speech should be studied carefully; but we refer here rather to what was implied but not expressed. To the speaker and his fellow-religionists, Great-Britain-and-Ireland appears as a great Mohammedan power, controlling the destinies of millions of Moslems in India and Egypt, and less directly in Persia and Turkey, and he points out to these that the protection of this country is their only alternative to the loss of position in the world. Do we here in England realise how we look to the world? If we could do so, how would our wider knowledge affect our thinking about the comparatively petty differences that divide and exasperate us at home? Let us think imperially!

It is said that Queen Elizabeth once, pointing to a copy of the Bible, said, "This is the book in which everyone seeks his own opinions—and finds them." The custom of taking texts from the Bible to prove, or at least to illustrate and support, one's thesis is an old one. The writers of the New Testament quoted from the ancient Scriptures of their nation, and scholars now are beginning to learn how freely they treated those quotations, and from their time downwards the Bible has been a storehouse of arguments and rallying cries by all parties. Since the religious struggles of the seventeenth century, however, this custom has largely fallen out of use, but whenever politics turns on religion or religious feeling, there is a tendency to revive the habit. Thus, William III. at the battle of the Boyne quoted Rom. viii. 13, and now that Home Rule for Ireland is apparently imminent, those who believe themselves to be his political descendants revive the memory of that quotation and encourage themselves by adapting it to their own circumstances.

KING GEORGE V. wishes the folk of Lancashire to regard him as Duke of Lancaster; the Prince of Wales is Duke of Cornwall. What are the rights, what the jurisdictions of these dukes? How far do they limit the powers of the King of Great-Britain-and-Ireland, &c. We know that the Duke of Cornwall draws a revenue from the duchy, and there is an official known as the Chancellor of the Duchy of Lancaster; but is there any parallel between the acquisition of these duchies by the Royal Family of England and the acquisition of the duchies of Brittany and Burgundy, e.g., by the royal house of France? Would it be right to compare the position of the English King at any time with that of his contemporary across the Channel? Until the Great French Revolution the French King always appears rather as the embodiment of various counts and dukes whose dominions he has acquired than as King of a united people. Is there anything corresponding to this in English history? When did the Dukes of Norfolk, for example, cease to have any governmental power in Norfolk?

DURING the period of English history generally known as "the Commonwealth," the English Government, which was then in the hands of the "Long Parliament," made an ordinance to form a "Society for the Propagation of the Gospel in New England" among the Indians of that country. When the Church-State, England, returned to Episcopacy after the period of Presbyterian and Congregational ascendancy, this society received a charter from Charles II., and has continued its work to this day. As, however, Episcopalians were rare in New England until the nineteenth century, the work was done by those who most nearly represented the Puritans of the seventeenth century. Recently, however, Episcopalians in Canada have shared in the work, and the question has been raised: Is this a Puritan or a State-Church institution? It is a practical question, for there is an endowment. Should those funds belong to modern representatives of the Puritans, or to members of the Established Church? When the society was founded it was both Puritan and Established Church. Whose fortunes should it follow?

## ITEMS OF INTEREST.

### GENERAL.

THE one-clause Education Bill introduced in the House of Commons on July 22nd by the President of the Board of Education, which would have given immediate financial relief to education authorities, was dropped at the end of the session, owing to the pressure of Parliamentary business.

THE President of the Board of Education has appointed a Departmental Committee to inquire and report, after consultation with the bodies and persons concerned, as to the steps by which effect shall be given to the scheme of the report of the Royal Commission on University Education in London, and to recommend the specific arrangements and provisions which may be immediately adopted for that purpose and as the basis of the necessary legislation. The Committee is as follows: The Right Hon. Sir George H. Murray, G.C.B. (chairman), Sir L. Amherst Selby-Bigge, K.C.B., Sir John R. Bradford, K.C.M.G., Sir William S. MacCormick, Dr. George Franklin, Dr. Arthur Keith, Mr. John Kemp, and Mrs. Henry Sidgwick, with Dr. H. F. Heath, C.B., as secretary.

SUBJECT to the alterations already announced, the Board of Education has decided to continue for the ensuing educational year its Regulations for Secondary Schools in England and Wales. Schools which have been receiving grant will, where no express notice to the contrary has been given, continue to receive grant on the same terms for the year 1913-14, if they continue to satisfy the Regulations in other respects. For the year which began on August 1st, 1913, the Regulations will be as follows: An additional grant of £1 on account of each pupil who was over fifteen but not over eighteen years of age at the beginning of the school year, and for whom grant is payable under Article 36 (b), will be paid to all schools except

those which receive grant under Article 40, provided that they are required to offer, and have, in fact, offered, 25 per cent. of free places under Article 20. Where owing to the smallness of the numbers in a school the grant payable under the foregoing Articles is less than £300, the Board may, after considering the greater proportional cost required for its efficient maintenance, and its importance towards a due provision of higher education for the area, make up the grant to £300.

A COURSE of twelve lectures for teachers on biology and social problems has been arranged by the Eugenics Education Society. They will be delivered by Prof. J. Arthur Thomson, regius professor of natural history in Aberdeen University, and Dr. M. Greenwood, jun., statistician to the Lister Institute of Preventive Medicine, at Kingsway Hall, Kingsway, London, on Fridays, at 6.30 p.m., commencing on September 26 next. The preference in applications for tickets will be given to teachers, who can obtain tickets for the course for 2s. 6d. from the honorary secretary, Eugenics Education Society, Kingsway House, Kingsway, London, W.C.

THE selected works from the schools of art which have gained awards in the National Competition were on view during August in the North Court of the South Kensington Museum. In former years the exhibition was held in the iron buildings; the new arrangement is a distinct improvement, and allows the works to be displayed and studied to much greater advantage. The general impression of maintained excellence in the exhibition as a whole is endorsed by the examiners' reports, which, with few exceptions, indicate a marked improvement in the quality of the works in the various departments of arts and crafts represented. Of the 9,846 works submitted by 270 schools, 13 were awarded gold, 67 silver, and 234 bronze medals, whilst 1,364 works were "commended." It is noticeable that of the thirteen gold medals awarded none has been gained for modelled or painted figures from life. Miss Nesbit, of the Clapham School of Art, has the unique distinction of taking two gold medals for illustrations, one for a series in pen and ink, illustrating a Norse legend, the other for a pastoral subject with a mediæval background, distinguished by very charming colour. The gold medal group by Miss Margaret Free, of the St. Marylebone School of Art, is exceptional, both in subject and treatment, and, in common with other works which have gained awards, shows a welcome deviation from the traditional school of art groups of vegetables and culinary articles. The promising work shown in the applied arts sections fully merits the encouraging commendations passed upon it by the examiners. In book illustration also there is very hopeful improvement, Bristol and Liverpool being well to the front with a series of clever etchings. In the more elementary stages lettering stands out in a marked degree of excellence, and it is pleasing to note that there are many carved examples in stone, slate, and wood. It is evident that the schools of art are devoting increasing attention to the practical aspects of

art, and the exhibition forms a promising augury for the future of British craftsmanship.

FORTY-FOUR students have obtained a secondary-school teacher's diploma from Cherwell Hall Training College for Women Secondary Teachers during the year ending July, 1913, and one student has been awarded the Oxford geography diploma. Miss I. Parker, tutor, has had the degree of M.A. (education) conferred on her by the Liverpool University for a thesis on the dissenting academies. The publication of this thesis will be a distinct addition to the history of education in England.

The Appointments Board, constituted by the Senate of the University of London to assist graduates and students of the University in obtaining appointments, and to co-ordinate and supplement the work done by the schools and institutions of the University in this direction, registers the qualifications of: (a) graduates of the University of London, (b) graduates of other universities who are students of London, (c) undergraduates in their last term, previous to entry on degree examinations. The Board recently reported to the Senate that since the appointment of a full-time secretary the work of the Board had increased greatly. The secretary has visited permanent officials of many Government departments, and received promises of support in the work of the Board; he has also visited the officials of the Oxford and Cambridge Appointments Board, the Teachers' Registration Council, and a number of principals, headmasters, headmistresses, and secretaries of educational organisations. The London Chamber of Commerce, the Association of University Women Teachers, the Central Bureau for the Employment of Women, and various colleges and schools have expressed their readiness and desire to co-operate with the Board. The secretary (Dr. A. D. Denning) will be pleased to give further information, and to see graduates at the University by arrangement. Educational authorities, business firms, and others, having openings for graduates, are asked to inform the secretary, who will forthwith notify the more suitable available graduates on his registers, and use every endeavour to secure the candidature of the most capable applicants. Approximately 1,000 posts have been notified to suitably qualified graduates registered with the Board within the last three months, and many appointments secured.

A RECENT resolution in the Indian Legislative Council announces that one scholarship of the value of £200 a year, the cost of which will be defrayed from Imperial revenues, will be awarded annually to a European or Anglo-Indian girl or woman who is a native of India, and whose parents are not resident in India for temporary purposes only. The scholarship will be granted for educational or medical training. The term "educational training" will be construed in a wide sense, and will include the following: Training of a secondary character for the teaching profession; training in one or more branches of domestic science; training as teachers of modern European languages; training as music mistresses; training as art teachers; training in kindergarten

methods. The scholarship will be tenable in the United Kingdom, or, with special sanction, in foreign countries, for a period of three years in the first instance, with the possibility of extension in special circumstances, and in particular in the case of medical students to four and five years.

THE Visual Instruction Committee of the Colonial Office has issued a book of lantern lectures on Canada and Newfoundland, the fourth of a series for which a special fund was raised by a committee of ladies, presided over by the Countess of Dudley. The book, which is illustrated by maps and views, is being published by Messrs. George Philip and Son, and the slides, as well as those previously issued by the committee, may be bought or hired from Messrs. Newton and Co., of 37, King Street, Covent Garden, W.C. The committee will next issue a set of lectures on South Africa, and lectures on the West Indies are being prepared. Books on India, the sea road to the East, and Australasia have already been published.

*Science Progress* for July appears under the editorship of Sir Ronald Ross, the former editors and advisory committee having resigned. Dr. M. S. Pembrey contributes a striking article in which a very frank statement is given on the subject of woman's place in nature from the biological point of view. It is somewhat refreshing to read Dr. Pembrey's straightforward remarks after the unconvincing rhetoric which is more usually found in writings on this question, and indeed is approached by Dr. O. A. Craggs in a second article. The essays on scientific national defence, by Colonel Charles Ross, and on the outlook for human health, by B. Houghton, will also be of interest to teachers.

THE School Journey Association has recently published its first handbook, under the title of "The School Journey Record." Copies (price to non-members, 2s.) may be obtained from the Press secretary, Mr. J. E. Dunkerley, "Dunrobin," Woodlands Avenue, Church End, Finchley, London, N. The 116 pages of the handbook constitute a mine of information on all matters germane to school journeys. One of the most useful sections gives classified particulars of more than fifty journeys taken during 1912. The handbook also contains reports of several papers read at winter meetings of the association, in which special aspects of the movement are considered. The record is indispensable to everyone concerned in the organisation of school journeys.

WE welcome the first number of *The Journal of Ecology*, a new quarterly, edited for the British Ecological Society by Dr. Frank Cavers, and published by the Cambridge University Press. The journal "aims at furnishing a comprehensive review of progress in the entire field of ecology." The comparatively new subject of ecology—the systematic study of plants and animals in relation to their natural environment—has practically revolutionised the science of botany, and has greatly stimulated the study of the natural history of animals. A journal of ecology bringing together current work has become an urgent

need of all students of the subject, owing to the enormously increased and increasing output of ecological publications. The first number contains a rich collection of articles of importance to botanists, and future issues—for which is promised, *inter alia*, a series of articles by specialists on methods of ecological study—will be awaited with interest. The annual subscription is 15s. net., or 5s. net each for single copies.

THE May issue of the *S.T.V.*, in which the proceedings of the Incorporated Association of Secondary Teachers of Victoria are published, contains the report of the council of the association for the year ending February 28th last. During the year thirty-five new members and five associates were added to the list of members, which now contains the names of 322 effective members, including fifty associates, as against 318 members, including fifty-nine associates, last year. Twenty-four names have been removed from the roll for various reasons during the year. One of the most important educational developments of the past year in Victoria was the creation of the Schools' Board, which takes the place of the old Board of Public Examinations. Early in the year university legislation was introduced to abolish one board and establish another, and a clause most important to this association was embodied in the statute. It is provided that the eight members representing the registered schools shall be elected by the Incorporated Association of Secondary Teachers of Victoria. The board has already had several meetings, and, it is understood, is recommending important changes. The direct representation of the association on this board is a matter of the utmost importance, and the council may be congratulated on the recognition of the association.

#### SCOTTISH.

THIS year's discussion in the House of Commons on the Scottish Estimates gave rise to an exceedingly interesting debate on education in Scotland. Mr. J. M. Hogge, the *enfant terrible* of the Liberal party, who is always asking questions embarrassing to his own side, opened the debate in an able and well-informed speech. He had some trenchant criticism for the complacency and self-satisfaction of the Scotch Education Department, and concluded by asking for a Royal Commission to consider the whole question of national education. Sir Henry Craik, who followed, undertook the defence of the Department with which he was so long and so honourably associated. In a vigorous speech he poked fun at Mr. Hogge, who had drawn a highly coloured picture of the hardship of cycling a few miles to a central secondary school. Sir Henry declared that when he was a boy he had to leave home at seven in the morning and walk more than two miles to school. All this, he declared, had done him no harm. As one looked at the alert, well-knit frame of the resolute septuagenarian one was bound to admit that it had not. Sir Henry maintained that what was most needed in Scottish education was to raise the status and advantages of the teaching profession. Money expended in this direction would, he maintained, be

well spent, and if any saving had to be effected elsewhere thereby it might well be secured by reducing the expenditure on the palatial and costly school buildings, which were too often only monuments to the conceit of those who sanctioned them. Major Hope, a colleague of Sir Henry on the Unionist benches, rather turned the laugh against the ex-Secretary by declaring that Sir Henry himself, while head of the Education Department, was largely responsible for these palatial buildings.

SEVERAL other speakers took part in the debate, each of whom had a specific for the cure of the educational troubles of Scotland. By general consent it is admitted that the palm for wit, humour, and wisdom was borne off by Mr. Holmes, the member for Govan. He inveighed against the petty tyranny to which teachers were subjected by the small school boards, and advocated as the only cure the enlargement of educational areas. He pleaded earnestly for better pay for the profession. "No man," he said, "since the beginning of time has made a fortune by intellectual and moral teaching, but high efficiency and high pay go together, and we ought to recognise the great services of the teaching profession to the nation by paying them adequate salaries." The Secretary for Scotland, Mr. MacKinnon Wood, in his reply, admitted that a great deal could be said for larger areas, but he was not sure that an inquiry was necessary. He suggested that members on both sides of the House should consider the matter and make representations to him during the recess. In regard to the facilities for higher education in isolated districts, he declared that the Department was anxious to do all in its power to provide these, and was giving every encouragement to school boards in such places to set up intermediate or sub-intermediate schools. At the same time, he pointed out that while in England the proportion of pupils going to a higher course was one in twenty-two, in Scotland it was one in seven.

At the present time, when the question of the desirability of larger areas for educational administration is so prominently before the country, both in Parliament and at educational conferences, timely light is shed upon the small school board and the capacity of its members for educational work by the account in the public Press of the proceedings of the Carluke School Board. At a recent meeting of the board the applications for two vacancies on the school staffs came up for consideration. Although the vacancies had been advertised without restriction of any kind, the first act of the board was to decide by a majority to consider only local applicants. A motion was then made to the effect that the names of the nine local candidates should be put into a hat, and that the two names first drawn should be accepted as the successful candidates. One member protested against this "as gambling with the reputation of teachers," while another declared that it was "a bit unmanly," but in the end the motion was approved by a majority of one. A further casting of lots also settled the respective schools to which the lucky candidates were allocated. As all this was done publicly the teaching profession has a right to expect that the Department

will intervene by refusing to recognise teachers appointed in this irregular, and, one would hope, illegal fashion. In any case, it serves as one more object-lesson on the hopelessness of the small school board.

THE eighth biennial congress of the National Association of Teachers of the Deaf was held this year in the Deaf and Dumb Institution, Langside, Glasgow. The various meetings were attended by representatives from all parts of the country, and during the three days of the conference an interesting series of discussions took place on various aspects of deaf mute education. Mr. W. H. Addison, Glasgow, in his presidential address, said that he was satisfied that deaf dumbness was not on the increase, and with the social and moral uplifting of the people in the large cities he believed there would result a large decrease. Mr. Addison entered a strong plea for a national system of training teachers of the deaf. At the present moment the English Board of Education and the Scotch Education Department were engaged in formulating a system of training teachers, but in view of the small numbers necessarily concerned he was certain it would be much more economical and much more effective to have an all-British college under the joint management of the two Departments. Resolutions asking for increased Treasury grants, improved super-annuation terms, and extended facilities for higher education for deaf mutes were passed.

THE Rev. Dr. W. A. Heard, headmaster of Fettes College, in giving evidence before the Royal Commission on the Indian Public Service, said that he was of opinion that it was not desirable to reduce the age of candidates for the Indian Civil Service to eighteen or nineteen. This opinion was based partly on consideration of the Service itself and partly in regard to the interests of the schools. Boys of eighteen or nineteen were not mature enough to give sufficient indication of the intellectual qualities required for such responsible service. This was especially the case where there was a large number of candidates, and where the total work of a candidate was not submitted to any single judge. In respect of schools, he feared that if the age was reduced the examination would dominate the schools to too great an extent. A post in the Indian Civil Service was regarded as a great prize, and schools would be expected, and in many cases compelled, to direct their whole curriculum from the earliest stages towards this final goal. In reply to a question by the chairman, Lord Islington, Dr. Heard said that he would be glad to bring in the element of character as a factor in assessing the merits of the candidates, but he did not see any practical way of doing it. The pessimistic and the optimistic master took very different views of boys' characters, and there was no way of standardising their judgments. Mr. J. Allison, headmaster of Watson's College, Edinburgh, gave evidence on similar lines.

It is satisfactory to be able to report that after a protracted and stormy voyage, during which shipwreck on several occasions seemed inevitable, the

Mental Deficiency (Scotland) Bill and the Medical Treatment (Scotland) Bill have reached the safe haven of Acts.

#### IRISH.

THE feature of the month has been the passing of a new Intermediate Education Act. A year ago the preparatory grade of the examination system of the Intermediate Education Board was abolished, and with it went the grant for preparatory-grade students between the ages of thirteen and fifteen. This was naturally felt to be a grievance by many schools, especially by those which have comparatively few pupils above fifteen. The Board made proposals for giving grants on these younger students by inspection, but as the legal authorities declared that this was *ultra vires*, an Act of Parliament was necessary, and Mr. Birrell accordingly introduced this spring the new Act which has now become law. The Act goes somewhat further than merely remedying the grievance just mentioned. Its two main features are: (i) It introduces the system of paying grants merely upon inspection, a method of payment which the Board is anxious to extend to all the grades; and (ii) pupils above twelve are brought under the cognisance of the Board, the lowest age hitherto having been thirteen.

To come to details. The Act is a short one, consisting of only two clauses. The first clause states that no public examination shall be held by the Intermediate Education Board admission to which is confined to students under fourteen years of age, but the Board may make provision (i) to inspect schools annually with the view of ascertaining the degree of efficiency shown in the education of pupils under the age of fourteen, and not under the age of twelve; and (ii) to make grants to managers of schools on the results of such inspection. The amount of the total grant for any year under this Act shall not be more than one-sixth of the total amount available in the year for the payment of fees to managers. The second clause authorises the Board, with the approval of the Lord Lieutenant, to make rules for carrying out the objects of the Act, and in particular for prescribing and satisfying itself as to the observance of conditions on which the managers may receive payment of the school fees. The rules are to be laid before the Houses of Parliament.

The new rules and programme of the Intermediate Board for 1914 were only published towards the end of August, too late for comment in these notes. One can only say that it is very awkward for the schools, which in Ireland open earlier than in England, not to know before the latter end of August what changes are being made by the Intermediate Commissioners. For example, it was known that one of some importance had been introduced, viz., that there should be a new commercial course, and in order to arrange the school curriculum for this it was important to know exactly what it was to be. It has become an unfortunate custom in recent years for the rules and programme to be delayed, but they have never been so late before. Easter is the latest date at which



they should appear, and certainly someone should be responsible for seeing that this is done.

WHEN the National University was established, one of its characteristics was that it should be residential, and that degrees could only be obtained after attendance at lectures. This was felt to be a grievance by a certain class of students throughout the country who had hitherto been able under the old Royal University to obtain a degree by examination. To this class belonged a large number of teachers, especially primary-school teachers, and to mitigate the grievance an agitation has been going on for some months to have evening classes established in University College, Dublin, attendance at which should count as attendance at University lectures, and make evening students eligible for degrees. This would enable a large number of teachers and others who are engaged in the daytime to obtain university degrees. Mr. T. P. Gill, Secretary of the Department, is supporting the movement, and thinks it would enable all the men worth considering to take degrees. The Academic Council of the National University has been asked to report to the Senate on the project, and its decision is awaited with some interest. The scheme is clearly open to some serious difficulties, one of which is that of getting the professors to duplicate their lectures. A professor who has to lecture several hours in the day will naturally and reasonably object to repeat the lectures in the evening, and it will be difficult to maintain the proper university status of a professor if this is to be expected of him. On the other hand, if the evening lectures are to be given by the professor's assistants, can they properly be regarded as university courses?

THE Education Committee of the Dublin Corporation has published a resolution directing attention to the need of co-operation between the Royal College of Science and the National University. The resolution passed is as follows: "That in the interests of the students of the National University who have been awarded scholarships by the Corporation of Dublin, it is most desirable that the courses in engineering and experimental science in the National University and the Royal College of Science should be so co-ordinated as to enable students of the University to avail themselves of the courses and equipment of the College of Science." In Belfast the Queen's University and the Technical College have arranged for mutual co-operation, and there is every reason why in Dublin the splendidly equipped College of Science should be available for University students. Dublin University, it is true, has its own science laboratories and equipment, but that is all the more reason why an effort should be made to avoid the unnecessary expense of building and equipping a third set of laboratories in connection with the National University in Dublin.

#### WELSH.

IN connection with the teaching of Welsh history, it is interesting to notice the offer of a prize of £20 by Mr. D. A. Thomas for the best list of ten eminent Welshmen, whose memory Mr. Thomas proposes to perpetuate by statuary, to be placed in Cardiff Town

Hall, at a cost of more than £10,000. The adjudicators as to the list were Sir T. Marchant Williams, Mr. W. Llewelyn Williams, M.P., and Prof. Thomas Powel, of the University College of South Wales and Monmouthshire, Cardiff. There were 354 competitors, and the result of their voting has produced the following names (placed in alphabetical order): (1) Dafydd ap Gwilym; (2) Saint David; (3) Gerald the Welshman (Giraldus Cambrensis); (4) Owen Glendower (Owain Glyndwr); (5) Henry VII.; (6) Howel the Good (Hywel Dda); (7) Prince Llewelyn; (8) Bishop Morgan; (9) Sir Thomas Picton; (10) Rev. William Williams of Pantycelyn.

THE National Eisteddfod has been held this year at Abergavenny. It is curious that in the literary competition in Welsh—a description of the tributaries of the Wye and the Usk—the prize was withheld, the adjudicators stating that good grammatical Welsh was not written by a single competitor. Similarly the prize in the same subject in English was not awarded on account of lack of merit. In a competition for conversational Welsh, confined to children, disappointment was expressed by the adjudicator at the smallness of the number of competitors. The first prize for the choral society competition of £150 was won by Cardiff Harmonic Society, and the second prize was won by Rhymney Gwent Choral Society. The conductor of the winning choir is a commercial traveller, who has given all his leisure time to music.

THE Crowning of the Bard is the reward awaiting the writer of the crown poem. In this competition the adjudicators reported there was great keenness and excellence. Out of eleven compositions eight were of a high order, and six were reported as well within reach of the crown. For the eisteddfod carved oak chair and prize of £20 there were nine aspirants. The subject of the poem was an ode not to exceed 600 lines on "The Welsh Hearth." This coveted prize was won by a bachelor of science in the University of Wales, an old student of the University College of Wales, Aberystwyth, Mr. T. J. Thomas, now science- and Welsh-master in the Merthyr Municipal Secondary School. The arts and crafts competitions were very varied, and included awards for designs for a Welsh village institute and library, design for a public fountain; a title-page; embroidered bedspread, panel, and book-cover; portière; pillow lace; linen tea-cloth; panel screens; sketches and illustrations; lady's blouse and handkerchiefs; Irish crochet; needlepoint lace; modelling of various kinds, &c.

IN connection with the award to an orchestra of instrumentalists, the sole entrant for orchestral work, the adjudicator, Dr. Roland Rogers, said what Wales most wanted in music was good teachers. They had a few good violin masters in Wales, who had to work hard to make a living, but pupils had to go to a large town to receive good instruction in the playing of the oboe and other orchestral instruments. Perhaps when they got a Welsh National School of Music, if it was a truly national school, they would have sufficient musicians who would not only take up one particular study, but also a secondary study, which in nine cases

out of ten would be an orchestral instrument. Such pupils would go back to their homes and give the necessary tuition to their neighbours, so that in years to come he felt sure there would be plenty of orchestral music in Wales.

THE eisteddfod at Abergavenny was marked by the production of the Pageant of Gwent, representing twelve episodes of the past of the district. These included a scene in the life of Caradoc, Bishop Teilo, King Arthur, Seisyllt ap Dyfnwal, Dafydd ap Gwilym (the greatest of the Welsh bards), Owain Glyndwr, Henry V., at the head of the Monmouth troops, reception of the king-maker, the presentation of a Welsh Bible to Queen Elizabeth, reception of King Charles I. by the Marquis of Worcester after the battle of Naseby at Raglan Castle; lastly, the vision of Arthur. The representation of these scenes was distributed amongst inhabitants of the various towns of the neighbourhood concerned.

THE Earl of Plymouth, as one of the presidents of the National Eisteddfod, made the meeting the occasion for a plea for the institution of a Ministry of Fine Arts. It is pointed out that the eisteddfod acts as a patron of arts, for which it provides rewards. It encourages the tyro, it directs the efforts of the student, and it makes possible the cultivation of art upon a democratic basis. A Ministry of Fine Arts would have in its hands similar interests. It would foster individuality in art and at the same time cultivate the art and appreciation of the general public.

### THE GREEK MIND AND ITS EXPRESSION.

*Ancient Greece: a Sketch of its Art, Literature, and Philosophy, viewed in connexion with its External History from Earliest Times to the Age of Alexander the Great.* By H. B. Cotterill. xxiv+500 pp. Illustrated. (Harrap.) 7s. 6d. net.

THIS is not quite like the ordinary histories; the title describes it with accuracy; the subject is the Greek mind and its expression, and the history comes by the way. It seems also to be meant for popular reading; although it is a scholar's work, and, as we shall see, by a well-read man, the impression left on one's mind after reading it is that it is meant for those who do not know Greek.

Mr. Cotterill has studied the results of modern excavations, as well as modern theories of literature and history; he has used his own judgment, and for the most part with prudence. Thus he sees that the Mycenaean arms and dress are not Homeric, and wastes no time in stripping the Homeric warrior of his bronze body-armour; but, on the other hand, he will not let Homer write in the Homeric age, but soon after it. We are grateful for one Homer, but it must be confessed that Homer does not write as if his setting was antiquated. Mr. Cotterill agrees with Ridgway that the Achæans conquered the Mycenæans, and the Dorians these; he is actually ready to allow even the Dorians not to be so black as they are painted, but he is not quite sure about that after all. He gives a very good and likelike sketch of the Achæan religion, and of Homeric society and feeling. With the Mycenaean age he is not so good. One sees from books like this how dangerous it is to have the knack of the phrase; Sir Arthur Evans, by his

romantic titles and the skilful use of the capital letter, has imposed on scholars a view of Cretan antiquities which implies some loose reasoning; but it will never be found out in this generation. Later, someone will make a small reputation by turning the daylight on the Labyrinth and the Double Axes. This part of Mr. Cotterill's book is not well digested; there are also a number of parentheses and digressions which could be spared (e.g., p. 13). His judgment does not show the same caution which he wisely uses elsewhere (as in discussing the Maidens of the Acropolis, p. 228). A thing is sacred because found in a temple (p. 51) if by sacred is meant dedicated; but Mr. Cotterill uses it in the sense of symbolical, quite another thing. It is scarcely reasonable to say that "Homer knew Greece well, although he may never have seen it" (p. 63), or that Æolian and Achaian may be linguistic variants of one name (p. 77). There is a serious mistake on p. 41, where the old letter San M is confused with sigma; they are distinct letters and distinct sounds, the older form of sigma being  $\varsigma$  with three strokes: they are the Phœnician Shin and Tsade. In speaking of the Corinthian vases, Mr. Cotterill laments that they tell us so little of Corinthian life; he seems not to have seen the long series of votive tablets from Poseidon's precinct, which give some sides of the life very fully.

The book is fully illustrated, and the pictures are near the text they illustrate; each picture is identified and carefully described in the introductory list (note a misprint under No. 49, Zastri for Castri). Some are very good indeed, but not all. The selection is good, especially for the earliest age. The book is wonderfully cheap at the price asked.

### GARDENING FOR SCHOOL CHILDREN.

(1) *Principles and Practice of School Gardening.* By Alexander Logan. xv+313 pp. (Macmillan.) 3s. 6d.

(2) *School Gardening, with a Guide to Horticulture.* By A. Hosking. xi+326 pp. (Clive.) 3s. 6d.

(3) *Garden Work: A Practical Manual of School Gardening.* By William Good. xvi+399 pp. (Blackie.) 3s. 6d. net.

(4) *School and Home Gardens.* By W. H. D. Meier. v+319 pp. (Ginn.) 4s.

(5) *Agronomy: A Course in Practical Gardening for High Schools.* By Willard Nelson Clute. xvi+296 pp. (Ginn.) 4s. 6d.

(6) *The Young Gardener.* By the Countess of Selborne. 62 pp. (Edward Arnold.) Cloth, 1s.; paper, 4d.

(7) *Helpful Lessons in School Gardening.* By J. R. Richardson. 95 pp. (McDougall.) 8d. net.

(8) *Practical School Garden Note and Record Book.* By John Weathers. 47 pp. (Longmans.) 6d.

(9) *McDougall's Gardening Diary and Nature Note Book.* 96 pp. (McDougall.)

IN school nature-study teachers may usually recognise a stage when the child's first indiscriminate curiosity is replaced by an interest in plants and animals chiefly for the sake of their practical utility. With some pupils this stage may be succeeded in its turn by a love of the knowledge of living things for its own sake, and nature-study develops into biology. With the majority, however, it is inevitable that obvious usefulness or the reverse will remain the plant's or the animal's paramount claim to the pupil's attention. School gardening satisfies the need, felt at this stage, for the practice of a useful art rather than the study of a science. At the same time the work,

to a greater extent than any mere technical training, affords the teacher an opportunity to make practical success dependent upon close observation and intelligent experiment. Unless the opportunity is taken, school gardening sinks to the level of horticulture—a trade to be learnt, like any other, by rule-of-thumb methods, and without any necessarily educational quality. Its value is being recognised to an increasing extent, however. "In England, at the end of 1911, there were more than 2,000 school gardens, at which about 38,000 pupils were receiving instruction. In Scotland the subject is of more recent introduction, but during the last four years about 350 schools have taken it up."

Among the books considered in this notice, Nos. 1 and 2 emphasise most clearly the educational possibilities of school gardens. Not only does Mr. Logan (1) insist on the necessity of an experimental plot, in which plants shall be systematically maltreated in various ways for the pointing of morals to the pupils; he will also have almost the whole garden-ground dug over in the autumn of each year, all boundaries obliterated, and the whole ground measured and laid out afresh by a new set of students. This advice is heretical, and, in our opinion, altogether admirable. The book is conceived throughout in the same enlightened and scientific spirit. Every chapter is plentifully provided with detailed instructions for practical work, eminently "cultural" for plant and pupil alike. The chapter on the diseases of plants and a very full calendar of garden work are other valuable features. The book contains a coloured frontispiece and 102 illustrations in the text; of these, the plans of six existing school gardens, and the diagrams explaining the principles of pruning, will be particularly helpful.

Mr. Hosking (2) is equally alive to the special opportunities in which school gardening abounds, and his first five chapters, dealing with the formation and general management of the garden, schemes of work, &c., will repay the careful attention of teachers. Besides dimensioned plans of a number of school gardens, this part of the book contains several suggestive diagrams of fruit and forestry plots, while the chapter, "Some Special Suggestions," is full of valuable hints. Following the chapters on soils, manures, and the cultivation of garden crops, comes a section on garden pests and miscellaneous information, including a number of useful tables for reference. The illustrations, eighty-four in number, are mostly reproductions of excellent photographs.

Mr. Good's "Garden Work" (3) is an attractive manual of horticulture—that is to say, it is primarily concerned with the successful cultivation of vegetables, fruits, and flowers. In an appendix of some twenty pages the school garden, with its special aims, opportunities, and difficulties, is considered, and the author's experience as instructor in school gardening enables him to give good advice on general methods of teaching. The rest of the book, however, appeals less directly to teachers than to those taking up horticulture for personal pleasure or profit. Such readers will find the volume pleasantly written and full of useful information. It is very well printed, and contains a large number of interesting plates and other illustrations.

The scope of "School and Home Gardens" (4) is stated very exactly in the preface. The book "gives definite instructions for arranging, planting, and caring for plants commonly grown in the house, yard, and garden. It tells how to do things in such a way that good results will be obtained. It is not a book of experiments, nor does it deal with generalities." Thus, in a broad sense, the book falls into the same class as the last-named. It is specially to be recommended to

amateurs whose available garden space is very restricted. To such, the earlier half of the book, on gardening in window-boxes, house-yards, and small lawns, will be welcome indeed, while the remaining chapters will be no less useful to those with wider opportunities.

"Agronomy" (5) is another gardening book of American authorship. Its aim is "to develop the subject of agriculture from the urban viewpoint," and the school garden naturally receives a large share of attention. The author considers that, whereas school botany exists for the sake of the drill it gives in observation and deduction, as well as for the information it affords, school agronomy may largely dispense with experiment. With this view we do not agree. The book is well written and illustrated, and will serve excellently for reference.

"The Young Gardener" (6) is an unpretentious but sound little guide to the cultivation of common kitchen vegetables, bush fruit, and flowers; it may be recommended. A good deal of useful information and advice is also to be found in Mr. Richardson's "Helpful Lessons" (7), but here and there in the book one comes across absurd statements which detract from its many good features.

The "School Garden Note Book" (8) arranged by Mr. Weathers, and "McDougall's Gardening Diary" (9) may both be recommended for pupils' use. Each contains ruled columns in which may be recorded systematically the details of all gardening operations likely to be undertaken, as well as particulars of the weather, cost of materials, proceeds from sales, &c. Much of the value of the work depends upon the faithful keeping of such records.

## RECENT SCHOOL BOOKS AND APPARATUS.

### Modern Languages.

*Test Papers in Elementary German Grammar.* By Rev. W. H. David. 56 pp. (Oxford University Press.) 1s. 6d.—This collection of test papers is based on Mr. A. E. Wilson's "Outlines of German Grammar." The questions are intended to test formal grammar; they are, with very few exceptions, not "reform exercises." The questions on pronunciation are not of a satisfactory type. "How would you write in German the sounds produced by the English words maid, floor, shovel?" "Express phonetically in English letters the pronunciation of ö"—such questions are pointless, because the thing cannot be done, unless the teacher is content with quite inaccurate approximations. The other questions are generally satisfactory of their kind; but most teachers now prefer to test grammatical knowledge by letting the pupils apply it in sentences, not by requiring answers to such questions as: "Give the six co-ordinate conjunctions which do not affect the order of words. Decline *der* in two ways. Give with their meanings four prepositions governing the acc. only, six dat. only, five gen. only, four dat. and acc." There are a few vocabulary questions; the importance of testing the pupil's knowledge of words from this point of view has not been adequately realised.

*A Handbook of German Grammar.* By F. A. Bernstorff. vi+155 pp. (Ginn.) 3s. 6d.—This book contains only the essentials, but presents these in a clear way, and is generally accurate. The weakest part is the section on pronunciation; the Americans have as yet done little to apply phonetics to modern language teaching. To retain the order Nom. Gen. Dat. Acc. strikes one as curiously old-fashioned;

considering the identity in form of Nom. and Acc. everywhere except in the masc. sing., it is pure waste of space to separate them. The declension of the noun is given twice over. Prof. Curme's treatment being given in an appendix; it would have been better to substitute it for the other, in the main part of the book. The examples are well chosen, and teachers may find them useful, and for purposes of reference or revision the book may be recommended. It is well printed, and there are very few slips. The queerest thing is the implication, in the list of strong verbs, that *preisen*, *klingen*, *sieden* may also be conjugated as weak verbs.

*An Elementary German Grammar.* By E. C. Wesselhoeft. xvi+272 pp. (Heath.) 2s. 6d.—Like most modern language books hailing from the United States, this book is on what we should consider rather old-fashioned lines. The remarks on pronunciation are sound on the whole, but it is not quite correct to say that the German unaccented *e* is pronounced like the English *a* in "comma"; or that the *g* of *Tag* should be pronounced as *ch*; or that *qu* has the sound of *kv*, with the lips somewhat less rounded than in English. The rules of grammar are given to the pupil and followed by "reading exercises" and by "drill," which is not always satisfactory in form. There is also a "written exercise," consisting of sentences for translation into German. The sentences often have an Ollendorffian air ("Fritz has my pen, but I have his pencil"; "The old judge ordered the young dyer to hold up his right hand"), and Americanisms occur ("a house on Market Street," "he came day before yesterday," "councilmen," "postal-card," "to check my trunks"). In point of method the book marks no advance.

*Schiller, Die Braut von Messina.* Edited by Karl Breul. ci+279 pp. (Cambridge University Press.) 4s.—Prof. Breul has now given us the fourth of the plays written by Schiller in his maturity, and he has performed his difficult task with his wonted skill and conscientiousness. The introduction is particularly full, as befits a play of such an unusual character, and the serious student of the German drama will find its perusal stimulating and profitable. Not only is the history of the play fully set out, but the learned editor has also dealt with Schiller's use of the chorus, and has supplied a comparison of Schiller's drama and ancient Greek tragedy; in an appendix he has given some parallel passages from the "Eumenides" of Æschylus, in W. von Humboldt's translation. The notes are full and accurate. There can be no doubt that this will long remain the standard edition of "Die Braut von Messina."

#### Classics.

*Roma Aeterna.* By F. Grainger. viii+132 pp. (Dent's Latin Readers.) 1s. 4d.—The plan of this book is excellent. It provides a description of the city and some of its great centres of life, of its heroes and its gods, its ideals, and significant events in its history. These are all written in simple Latin; and all new words, not in the normal vocabulary of Dr. Arnold, are explained in English. Some of the passages are written by the compiler; the others are extracts from Cicero, Livy, Ovid, Virgil, Propertius, Tacitus, Suetonius, Ammianus, and others, or even the Vulgate. There is, however, a vocabulary at the end, in contradiction to the principle of these books, which assumes the work of each preceding stage. The print is clear, but the margins are too small, so that the book is not properly designed for young eyes. There are a few plans and pictures, quite adequate.

*The Rhesus of Euripides.* Translated into English rhyming verse, with explanatory notes, by Gilbert Murray. xii+68 pp. (Allen.) 2s. net.—When we read Gilbert Murray, we exclaim: Almost thou persuaded me to approve of rhyming couplets for Euripides. Almost—but not quite. The effect is too slow and dreamy, recalling the "Earthly Paradise" or John Keats; and a page of Shakespeare read after it confirms our first view. But no doubt the ear for rhythm has gone for the time being, after three generations of browsing on printed books, and rhyme is needed to convey the sense of rhythm to most readers. For the rest, this is in the true Murray style: agreeable to read, naturally expressed for the most part in spite of rhyme (but he does allow himself certain liberties, *drive* rhyming with *Argive*, for example), and pointed, but not always close to the original. The lyrics do not give the same opportunity as usual; but they are well up to Mr. Murray's standard of skill.

*A Brief History of Greece and Rome.* By E. C. E. Owen. viii+314 pp. (Blackie.) 3s. 6d.—This is a book of the type which is more familiar in America than in England. It suggests the question, whether historical pemmican is of use to "young readers," for whom the book is meant. For our own part we believe that young readers care nothing for history, but only for story: the story of great men—Plutarch is the historian for young readers: or the story of great things—thus the history of Schliemann and his excavations would be highly profitable to young readers; but an allusion to the "sixth city of Troy" leaves them cold, and indeed ignorant, for it is only a number to them. Our view is, that history should begin with persons or great deeds, and that later round these persons or events should be grouped the associated facts, while in the last stage the text-book should be the original authorities. A companion for all stages will be a skeleton history, giving events and dates in order. But others may not agree; and if they think that a sketch of history is useful, Mr. Owen's is well done, and he is acquainted with recent research and discovery.

*Helps to Latin Syntax.* By C. G. Mortimer. 32 pp. (Oxford: Blackwell.) 1s. net.—These "Helps" are "tips" for the memory, and elementary tips; we should not think it necessary to discuss them at length but for two reasons. One is that there are certain omissions. Thus (p. 15) *nē*, the affirmative particle, very confusing to the beginner, should be noted; (p. 17) *ut—ne* should be added; the use of the perfect tense with *antequam*, since beginners always use the pluperfect; (p. 21) *non quod*, *non quo*, and *non quia* are a stumbling-block; (p. 20) *quin* is used with negatives because it contains a negative, *qui+ne*. And the phrase "after" or "before" is misleading in Latin, unless explained as referring to English (p. 7). The second reason is this: we wish someone would compile a short, complete syntax, in which the cautions could be printed in special type. It would make a very small book, but the small book would be very useful.

#### English.

*Lessons in Prose and Verse Composition.* By W. J. Addis. vi+128 pp. (Dent.) 1s. 4d.—Mr. Addis has made a bold attempt to systematise the teaching of composition. Our chief criticism is that he is too successful; for though we are very grateful to him for his thoroughness, we feel that his systematisation develops into something very like pedantry. Should composition be taught to the middle forms of secondary and the higher classes of elementary schools

by a method so analytic as to need the use of such terms as integrates and aggregates—even with the defining lucidity of “woven-in sentence-part sentences”? Or, is it human—we will not say pedagogic—to ask such boys to “write connected sentences of twenty-eight, six, seven, eighteen words”? But apart from this rather stilted way of putting things, Mr. Addis has written a very interesting little book, from which intelligent teachers cannot fail to derive great benefit. We think—it may, of course, be a prejudice—that the intelligent teacher will prefer to begin his composition lessons with the paragraph rather than with the sentence, if for no other reason than because it will help him to inculcate more cogently the need for clearness, energy, grace, and rhythm, on which Mr. Addis sets such store in his second lesson.

*English Composition based on the study of Literary Models.* By A. Cruse. 200 pp. (Frowde.) 2s. 6d.—It would be hard to imagine a greater contrast in method than that offered by a comparison of this book with that by Mr. Addis reviewed above. Here we have a large number of examples, very judiciously selected, on which are based questions and exercises of a carefully graded character. The work is as systematic as can be desired, and at the same time admits of, and indeed invites, connection with the ordinary literature lesson. First of all there are fifteen pages of selections from the great essayists; then we have chapters dealing with the mechanism of an essay, types of essays, style, letter-writing, paraphrasing, and verse-writing—all of them including models and practical exercises. It seems to us that we have here an excellent combination of the comparative method of teaching literature and the synthetic method of teaching composition.

*Arnold's Junior English Grammar.* By A. E. Roberts and A. Pratt. viii+144 pp. (Edward Arnold.) 1s.—Our duty is to review this book on its merits, but the opening sentence of the preface tempts us to remark that the real place of grammar in the curriculum is curiously misunderstood at the present time. “It is generally agreed that a boy should know the rudiments of English grammar if he is to make proper progress in his study of a foreign language.” We resist, however, the temptation to discuss this paradoxical statement, and merely point to the quotation as an indication of the kind of pretext under which the teaching of grammar is surely reasserting its place in the curriculum. For the book before us much may be said; it is clear, simple, and concise. Elaborate technicalities are avoided, and the exercises are straightforward and sensible.

#### Mathematics.

*A School Algebra.* By F. O. Lane and J. A. C. Lane. viii+333 pp. (Arnold.) 3s. 6d.—The authors claim that the book is written in accordance with modern ideas on the teaching of algebra, and although this is not entirely the case, we believe it will be found very suitable for use by non-specialists. Rightly, no attempt is made to prove the binomial, exponential, and logarithmic expansions, and, except in the case of the geometric progression, the convergency of an infinite series is not touched upon. In connection with the geometric series we suggest that to say “Clearly  $L(r^n) = 0, \therefore r < 1$ ,” begs the question of the convergency. It is clear that we have a sequence of diminishing quantities, but the lower limit of such a sequence may be greater than zero. Apart from this, what is said about limits and gradients is quite satisfactory. Some improvement might be made in the first three chapters, for the rule of signs cannot be

proved as a boy reading them would be led to believe. We are glad to see that graphs are kept in their proper place; they are not dragged in with little or no cause. The examples are numerous, and on the whole good.

*The Principles of Projective Geometry Applied to the Straight Line and Conic.* By J. L. S. Hatton. ix+366 pp. (Cambridge University Press.) 10s. 6d. net.—The author of this work is an enthusiastic advocate of the value of projective geometry. He deplores the ascendancy of analysis, and we gather from the preface that one of the primary objects in writing the book was to demonstrate the superiority of the geometric to the analytic method. Without stopping to discuss this point, we go on to say that the student whose tastes lie in the direction of pure geometry will find here a mass of excellent material upon which he can exercise his faculties. The index of theorems proved in the text occupies six double-column pages, and there are numerous examples for exercise, many of them accompanied by useful hints on the way of solving them. Still, we feel the work to be disappointing; as general principles seem to lie buried under a mass of detail. We are surprised that there is no statement of the fundamental axioms of the subject, and it is decidedly startling after meeting the word “imaginary” several times to read when we reach the end of the fifteenth chapter that “The consideration of the properties of the circle and conic, which depend upon the imaginary, has been postponed for later consideration” in a subsequent volume. The author seems to have been embarrassed by the amount of material he had accumulated, and the work has suffered thereby very much. The consequence is that while it forms an excellent quarry for teachers, for the unguided student it is a labyrinth where he would quickly lose himself.

#### Science and Technology.

*Stories of Starland.* By Mary Proctor. 185 pp. (New York: Silver, Burdett and Co.; London: Bacon.) 1s. 6d. net.—The best part of this book is contained in the fifty or so pages devoted to the constellations. Miss Proctor has brought together a number of legends, some of which are new to us, relating to star-groups; and these stories will be more interesting to young readers than the details about the distances, sizes, and so on of the planets and stars. The style is that of dialogue between Mary, who provides the information, and Harry and Nellie, who ask proper questions in proper places, and patiently listen to the answers. Whether many children will be found in real life equally keen on learning what Miss Proctor has to say of astronomy may be doubted. It may also be doubted whether such an inaccurate statement as “the rainfalls on the stars must be drops of melting iron, while the clouds that form are sheets of molten metal,” should appear in any book devoted to scientific instruction.

*A First Book of Rural Science.* By J. J. Green. 146 pp. (Macmillan.) 1s. 6d.—Many rural schools are adapting their science teaching to their surroundings, and one of the first essentials for success is a supply of good text-books of the right kind. Mr. J. J. Green has evidently a good idea of what is wanted. The teacher who is on the look-out for a trustworthy guide will find this book excellent for his purpose. It is skilfully arranged, well printed, well bound, admirably illustrated with pictures which possess “point,” and the practical and written exercises are good and suggestive. It covers a very extensive field, and the information given is accurate and very concise; indeed, we consider it somewhat too concise in some parts

for an ideal "First Book of Rural Science"; still, the skilful teacher will have no difficulty in amplifying the information given so as to make it readily understood even by beginners.

Among the small improvements which might be considered in a second edition we would suggest the following:—(p. 10)—An idea of the real sizes of the seeds illustrated should be given. No clear idea of the exact position of root-hairs can be gathered from the text. (p. 42)—No mention is made of the very troublesome ephemerals of which groundsel, classed wrongly as an annual in line 20, is the type. (p. 56)—A fuller account of water cultures should be given. The hard-worked teacher would doubtless be thankful for answers to the numerical questions set as exercises.

*Mothercraft, or Infant Management.* By Mrs. Ellis H. Chadwick. 126 pp. (Pitman.) 9d. net.—A perusal of Mrs. Chadwick's little book suggests that its matter might originally have formed a series of lectures on the upbringing and management of infants. In this form it might well have served a useful purpose, for it comprises a large amount of excellent precept clearly presented, and its teaching is for the most part both sound and practical. It is, however, rather difficult to see what place it is intended to fill in its present shape. The price of these twenty-two lessons, modest as it is, is practically beyond the means of those for many of whom it would represent the cost of a family dinner, and its language would sometimes prove beyond their comprehension in the absence of a more or less trained interpreter. On the other hand, it would serve as an admirable text-book for health and district visitors and others in daily contact with the class whose ignorance of simple essentials is so largely responsible for the excessive infant mortality of crowded populations. We should like to have seen a caution against the practice of allowing the child to lie in the cot with the feeding-bottle beside it. An infant brought up on the bottle should be, literally, "hand-fed."

*School Dentists' Society: Objects and Aims.* Second edition, illustrated. (Watford: Michael.) 1s. net.—That "an army marches on its stomach" is an ancient proverb which enforces a homely truth of universal acceptance. But it would appear that a people must have allowed itself to drift upon the verge of general edentulism before it can be roused to a realisation of the extent to which the physical well-being of a nation is dependent upon the due care of its teeth—a care, that is, which includes far more than the mere recognition that good dentistry can do much, if resorted to in time, to check the ravages of caries and even to furnish very passable substitutes for losses which ought never to have been suffered: a knowledge which implies not only the timely recognition of mischief already at work, but which goes back to the very beginning of each individual life, and demands for the full scope of its exercise no less than something like a revolution in the dietetic regimen of early childhood as well as in that of the adult. Such reflections are aptly enforced by the little book now before us, which contains a cosmopolitan review of the dental degeneration revealed by the examination of the mouths of school children and a summary of the measures adopted in different countries for dealing with evils thus laid bare, as well as several pages of useful instruction in regard to the means of combating and avoiding the causes from which these evils spring. Timely and efficient treatment may achieve much—and how greatly this is needed is sufficiently indicated by the cold logic of bare statistics. But "cure"—that "care" which, exercised in its fullest

sense, can alone guard against and prevent the persistent development of what is nothing less than a national evil as widespread as it is insidious—must be based upon something more effective than an awakening of the public to the existence of a serious danger. In the schools, children can be examined, their dental deficiencies gauged, and the causes from which these arise can be recognised. Future generations can be saved from a serious handicap in the struggle for existence by nothing less than an effective remodelling of some of the conditions which have become stereotyped in the home, and especially in the nursery. Used to this end, a little time spared from the hurry of modern "civilisation" would be abundantly and increasingly rewarded.

*The Gateways of Knowledge: An Introduction to the Study of the Senses.* By J. A. Dell. xii+172 pp. (Cambridge University Press.) 2s. 6d.—It was a happy idea to include in the Cambridge Nature Study Series this book on simple experimental psychology, since it is clearly important that every observer should know something of the tricks which his senses may play him. Besides certain experiments familiar to students of physics and physiology, the book includes a large number of tests of a more novel character dealing with sensation, memory, the growth of habit, and allied phenomena. Such work cannot fail to be of high educational value, as well as vastly entertaining, to the pupils of twelve to fifteen years of age for whom it is intended. The bearing of experimental psychology on all sides of education is fundamental and direct, and this course of practical exercises is sure to be welcomed, not merely by teachers who can employ it in class work, but by all who recognise the great interest and importance of the subject. The book is attractively produced and well illustrated. The description on p. 152 does not agree with Fig. 48, to which it refers.

#### Miscellaneous.

MESSRS. WILLIAMS AND NORGATE have recently added five new volumes to their *Home University Library*, which now includes seventy-five books. Prof. W. T. Brewster, professor of English in Columbia University, in his volume, "The Writing of English," provides an analysis of literary structure and style; Prof. J. B. Farmer, F.R.S., contributes a book on "Plant Life," and Mr. Charles Tower one entitled "Germany of To-day," which deals with many sides of life in Germany. The others are: "A History of Freedom of Thought," by Prof. J. B. Bury, and "Ancient Art and Ritual," by Dr. Jane Harrison. We have taken opportunities already of directing the attention of teachers to this valuable series of new books, in which subjects of importance are treated by acknowledged authorities; it will be enough on this occasion to say that the general excellence which has been a characteristic of the library hitherto is well maintained by the most recent additions to it.

*Ma Leçon—Type d'Entraînement.* By G. Hébert. Directeur du Collège d'Athlètes, &c. 184 pp. (Paris: Librairie Vuibert.) 1.75 francs.—An attractive book on physical culture and training in French opens up an engaging vista of educational advantages—not merely linguistic—in connection with *le sport*. No ordinary schoolboy would be tempted to shirk the French lesson with a volume like this on such a subject for his text-book, from which he could scarcely fail to learn not a little which would always prove of practical service to him on either side of the Channel. Written by an experienced master of his subject in crisp and lucid language, sound in its teaching, and adorned by numerous illustrations which really do

illustrate the text with Gallic grace and *verve*, it may be described as a work useful beyond the average of its competitors. The only serious fault we have to find with it lies in the fact that its binding and paper covers furnish but a poor equipment for meeting the ordinary hazards of school usage. The title-page bears the impress of an artistic group which suggests an imminent foul, on the tape, at the finish of a hotly contested 100 yards.

*The Festival Book.* By Jennette E. C. Lincoln. 72 pp. (Pitmans.) 3s. 6d. net.—The author has been prompted to write this volume by a desire to perpetuate the annual custom of the Maypole and Mayday festivities. The book is also an answer to the many inquiries she has received from schools and colleges in various parts of the country. The subject is treated historically, and hints are given as to how a successful Mayday pageant may be arranged. The major portion of the volume is taken up with showing how all manner of games, dances, and physical exercises may be adapted in relation to the Maypole. The final chapter gives suggestions as to the mechanical construction of the Maypole and accessories, and the appropriate costuming for Mayday pageantry. The book is of large quarto size, exceedingly well printed, and contains many good photographs, illustrations, and suitable music. We welcome this volume as an excellent addition to the fast-growing library of books bearing upon folk dancing.

EDUCATIONAL BOOKS PUBLISHED DURING JULY, 1913.

(Compiled from information provided by the Publishers.)

Modern Languages.

"A First German Prose Composition." By F. W. Wilson. (Edward Arnold.) 1s. 6d.  
 Casimir Delavigne, "Louis X." Edited by Marguerite D. M. Goldschild. 144 pp. (Blackie.) 10d.  
 W. H. Riehl, "Die Vierzehn Nothelfer." Edited by Alfred Oswald. (Blackie's German Texts.) 64 pp. (Blackie.) 6d.  
 "Phonetic Spelling: A Proposed Universal Alphabet for the Rendering of English, French, German, and all other Forms of Speech." By Sir Harry Johnston, G.C.M.G. iv+92 pp. (Cambridge University Press.) 3s. 6d. net.  
 "Friedrich Wilhelm von Hacklander der Zuave." Adapted from "Ein Schloss in den Ardennen." By G. T. Ungoed. viii+62 pp. (Cambridge University Press.) 2s.  
 "La France qui Travaille." Selected and edited by R. P. Jago. 240 pp. (Harrap.) 2s. 6d.  
 "Simple Dramatic Scenes in Easy French." Based on Siepmann's Primary French Course. Part i. By Mrs. A. G. Latham. 102 pp. (Macmillan.) 1s.  
 Verne, "Cinq Semaines en Ballon." Adapted and edited by E. Pellissier. (Siepmann's French Series.) 220 pp. 2s. Word and Phrase Book. 24 pp. 6d. Key to Appendices. 46 pp. 2s. 6d. net. (Macmillan.)  
 Verne, "De la Terre à la Lune." Adapted and edited by E. Pellissier. (Siepmann's French Series.) 218 pp. 2s. Word and Phrase Book. 24 pp. 6d. Key to Appendices. 42 pp. 2s. 6d. net. (Macmillan.)  
 "German Self-Taught." Thimm's System. Revised by W. E. Weber. 148 pp. (Marlborough.) Wrapper, 1s.; cloth, 1s. 6d.  
 "German Grammar Self-Taught." By W. E. Weber. 144 pp. Wrapper, 1s.; cloth, 1s. 6d. Key to ditto. 40 pp. Wrapper, 6d. (Marlborough.)

"German Self-Taught and Grammar with Key." By W. E. Weber. Three books in one volume. (Marlborough.) Cloth, 3s. 6d.  
 "German by Home Study." Three books banded together. (Marlborough.) Wrapper, 2s. 6d.  
 "L'Inglese Imparato da Se." (English Self-Taught for Italians.) By G. D. Vecchia. 120 pp. (Marlborough.) 1s.; cloth, 1s. 6d.  
 "El Inglès para Cada Cual." (English Self-Taught for Spaniards.) By W. Chevob. 128 pp. (Marlborough.) 1s.; cloth, 1s. 6d.  
 Alphonse Daudet, "La Belle Nivernaise." Edited by R. R. N. Baron. (Direct Method French Texts.) 128 pp. (Mills and Boon.) 1s. 6d.  
 Daudet, "Lettres de Mon Moulin." (Massard's Direct Method French Readers.) Junior Series. 136 pp. (Rivington.) 1s. 6d.  
 "Single Term French Readers." Edited by B. Minssen. Book I., 68 pp. 9d. Book II., 116 pp. 1s. (Rivington.)

Classics.

"A Selection of Illustrative Passages to the Syntax of New Testament Greek." (From "A Short Syntax of New Testament Greek," second edition.) By Rev. H. P. V. Nunn. 28 pp. (Cambridge University Press.) 6d. net.  
 "The Gospel According to St. Luke: The Greek Text." Edited, with Introduction and Notes, for the Use of Schools, by W. F. Burnside. xxvi+272 pp. (Cambridge University Press.) 3s. net.  
 Vergil, "Aeneid." Book II. Text, Notes, and Lexicon. By J. F. Richard. 140 pp. (Clive.) 1s. 6d.

English: Grammar, Composition, Literature.

"Composition from English Models." Books I. and II. By E. J. Kenny. (Edward Arnold.) Book I., 1s.; Book II., 1s. 6d.  
 "The Granta Shakespeare." Edited by J. H. Lobban. "The Merchant of Venice." xxii+150 pp. "A Midsummer Night's Dream." xxii+118 pp. (Cambridge University Press.) 1s. each.  
 "Spelling and Punctuation, with Passages for Dictation." By H. Shoosmith. 128 pp. (Clive.) 8d.  
 "Ten More Plays of Shakespeare." By Stopford Brooke. 313 pp. (Constable.) 7s. 6d. net.  
 "Tales of the Homeland." By Lewis Marsh. 200 pp. (Henry Frowde and Hodder and Stoughton.) 1s. 4d.  
 "Tales of Foreign Lands." By Lewis Marsh. 268 pp. (Henry Frowde and Hodder and Stoughton.) 1s. 6d.  
 "Second Infant Reader." 96 pp. (Henry Frowde and Hodder and Stoughton.) 8d.  
 "Spelling Through Dictation." By Thomas Bennett. 64 pp. (Harrap.) 1s.  
 "Pupils' Book (Spelling Only)." (1000 spelling words.) By Thomas Bennett. 29 pp. (Harrap.) 3d.  
 "English Literature in Prose and Verse." Vol. ii., "From Chaucer to Bunyan." Selected by E. L. Elias. 224 pp. (Harrap.) 1s. 3d.  
 "Lords' Men of Littlebourne." By J. C. Andrew. 192 pp. (Harrap.) 1s. 3d.  
 "Exercises in English Grammar." By N. Notman. (Longmans.) 6d.  
 The Children's Classics:—Junior: No. 22, "Tales from Troy." Adapted from the "Aeneid," by Alice M. Bale. 48 pp. Sewed, 2½d.; cloth, 3½d. Intermediate II.: No. 43, "The Heroes." (Abridged.) By Charles Kingsley. 80 pp. Sewed, 3½d.; cloth, 4½d. (Macmillan.)  
 The Tudor Shakespeare:—"Henry VI." Part ii. Edited by C. H. Barnwell. 186 pp. (Macmillan.) 1s. net.

"Elements of Composition for Secondary Schools." By H. S. Canby and J. B. Opdycke. 606 pp. (Macmillan.) 4s. 6d. net.

Shakespeare, "The Tempest." Edited by Frank Jones. 160 pp. (Mills and Boon.) 1s.

### History.

"The Groundwork of British History." By George Townsend Warner and C. H. K. Marten. In three sections: I., 55 B.C.-A.D. 1485; II., 1485-1714; III., 1714-1911. (Blackie.) 2s. 6d. each.

"Sidelights." (Historical Essays and Vignettes.) By Lady Blennerhasset. 245 pp. (Constable.) 7s. 6d. net.

Oxford Supplementary Histories:—"Scenes of Tudor Times." 144 pp. "Scenes of Stuart Times." 128 pp. (Henry Frowde and Hodder and Stoughton.) 6d. net each.

"London Past and Present." By W. J. Claxton. 192 pp. (Harrap.) 1s.

"Manual of Jewish History and Literature." By Dr. D. Cassel. Translated by Mrs. H. Lucas. (Cheaper Impression.) 280 pp. (Macmillan.) 1s. net.

"A Digest of British History." By S. H. McGrady. With an Introduction by Oscar Browning. 341 pp. (Ralph, Holland.) 2s. 6d.

### Geography.

Romance and Travel:—"A Cruise in Northern Seas." By Lord Dufferin. 128 pp. "In the Forests of Brazil." By H. W. Bates. 128 pp. "A Trip up the Nile." By Eliot Warburton. 128 pp. "Days in the Golden East." By Eliot Warburton. 128 pp. "The Land of the Lamas." By Abbé Huc. 128 pp. "Redman and Buffalo." By W. A. Bell. 128 pp. (Henry Frowde and Hodder and Stoughton.) 6d. each.

"A Comparative Geography of the Six Continents." By Ellis W. Heaton. 219 pp. (Ralph, Holland.) 1s. 9d. net.

"Questions and Exercises in Geography. (Complete.)" By R. J. Finch. 334 pp. (Ralph, Holland.) 2s. 6d. net.

### Mathematics.

"A First Formal Geometry." By R. Wyke Bayliss. (Edward Arnold.) 1s. 6d.

"Mathematics." By C. A. Laisant. (Thresholds of Science Series.) (Constable.) 2s. net.

"Trigonometry." With Complete Tables. By A. M. Kenyon and L. Ingold. 286 pp. (Macmillan.) 6s. net.

"Trigonometry." With Brief Tables. By A. M. Kenyon and L. Ingold. 174 pp. (Macmillan.) 4s. 6d. net.

"Logarithmic and Trigonometric Tables." To accompany the above. By A. M. Kenyon and L. Ingold. 142 pp. (Macmillan.) 2s. 6d. net.

"New School Geometry." Part ii. By Rupert Deakin. (Mills and Boon.) 1s. 6d.

### Science and Technology.

"Organic Chemistry." Vol. ii. By Prof. J. B. Cohen, F.R.S. (Edward Arnold.) 16s. net.

"A Manual of School Hygiene." New and revised edition. By E. W. Hope, E. A. Browne, and C. S. Sherrington. xii+312 pp. (Cambridge University Press.) 4s. 6d.

"Experimental Science." I., Physics. By S. E. Brown. viii+272 pp. (Cambridge University Press.) 3s. 6d.

"Text-Book of Physics." By A. W. Duff. 686 pp. (Churchill.) 10s. 6d. net.

"The Microtometist's Vade Mecum." By A. B. Lee. 526 pp. (Churchill.) 15s. net.

"Certificate Hygiene." By Rev. A. W. Parry. 121 pp. (Clive.) 1s. 6d.

"Chemistry." By R. Darzens. (Thresholds of Science Series.) (Constable.) 2s. net.

"The Living Plant: An Interpretation of its Functions and Structure." By W. F. Ganong. (Constable.) 15s. net.

"A Little Book about Rocks." By Annie Reid. 80 pp. (Henry Frowde and Hodder and Stoughton.) 6d.

"Home Hygiene." By Mrs. Hamilton Williams. 128 pp. (Henry Frowde and Hodder and Stoughton.) 1s.

Wonders of Insect Life:—(1) "Butterflies and Moths"; (2) "Bees, Wasps, and Ants"; (3) "Beetles and Flies"; (4) "In Pond and Stream"; (5) "Curious Insects"; (6) "Spiders and Scorpions." By F. Martin Duncan. 80 pp each. (Henry Frowde and Hodder and Stoughton.) 6d. each.

"Chemistry and its Relations to Daily Life." By L. Kahlenberg and E. B. Hart. 402 pp. (Macmillan.) 5s. 6d. net.

"Practical Physics for Secondary Schools." By N. H. Black and H. N. Davis. 498 pp. (Macmillan.) 5s. 6d. net.

"A Systematic Course of Practical Science for Secondary and other Schools." By Arthur W. Mason. Book II., "Experimental Heat." 170 pp. (Rivington.) 2s. 6d. net.

### Pedagogy.

"Scripture Teaching in Secondary Schools. A Report of a Conference held at Oxford, 22-23 April, 1913. Second Year." By H. Cradock-Watson. viii+94 pp. (Cambridge University Press.) 1s. 6d. net.

"The Mental and Physical Life of School Children." By Peter Sandiford. (Longmans.) 4s. 6d.

"The Idea of the Industrial School." By G. Kerschensteiner. 122 pp. (Macmillan.) 2s. net.

### Miscellaneous.

"University of Cambridge Higher Local Examination and Certificates of Proficiency in Modern Languages. Examination Papers, June, 1913, with Lists of Syndics and Examiners to which are added the Regulations for the Examinations in December, 1913, and June, 1914." 164 pp. (Cambridge University Press.) 2s.

"The Gospel According to St. Luke." By Rev. T. Walker and Rev. J. F. Richards. 174 pp. (Clive.) 1s. 6d.

"Songs for the Schoolroom." By T. W. Stephenson. 48 pp. (Henry Frowde and Hodder and Stoughton.) 1s. net.

"The Orchestral Music Books." By George Guest. Book I., 24 pp. 3d. Book II., 24 pp. 3d. Book III., 32 pp. 4d. (Henry Frowde and Hodder and Stoughton.)

"Animal Husbandry for Schools." By M. W. Harper. (Rural Text-Book Series.) 432 pp. (Macmillan.) 6s. net.

"The Citizen and the State: Industrial and Social Life and the Empire." Fourth edition. By J. St. Loe Strachey. 252 pp. (Macmillan.) 1s. 6d.

The Year Book Press Series of Unison and Part Songs:—"The Reapers." By Thomas F. Dunhill. (Unison.) 2d. "Lucy Ashton's Song." Canon I. By Dr. Chas. Wood. (Two Parts.) 2d. "The Best of Rooms." Canon II. By Dr. Chas. Wood. (Two Parts.) 2d. "To Music." Canon III. By Dr. Chas. Wood. (Two Parts.) 3d. "The Primrose." Canon IV. By Dr. Chas. Wood. (Two Parts.) 2d.



"The Ride of the Witch." Canon V. By Dr. Chas. Wood. (Two Parts.) 3d. "Cowslips for her Covering." Canon VI. By Dr. Chas. Wood. (Four Parts, S.S.A.A.) 2d. "Good Precepts." Canon VII. By Dr. Chas. Wood. (Three Parts, S.S.A.) 3d. "A Spirit Song." Canon VIII. By Dr. Chas. Wood. (Two Parts.) 2d. "What the Birds Say." Canon IX. By Dr. Chas. Wood. (Two Parts.) 3d. "Bed-time." By Dr. A. J. Silver. (Unison.) 1½d. "The Call of the Morning." By Dr. A. J. Silver. (Three Parts.) 2½d. "Will You Buy any Tape?" By E. C. Nunn. (Unison.) 2d. "The Little Boy and the Stars." By Dr. A. J. Silver. (Unison.) 1½d. "Elfin Song." By Dr. A. J. Silver. (Three Parts.) 3d. "The Tree (from the Norwegian)." By Dr. A. J. Silver. (Four Parts, S.S.A.A.) 3d. "There's Music in the Deep." By Dr. A. J. Silver. (Two Parts.) 3d. "May-Day Song." By Franklin Harvey. (Three Parts.) 3d. (The Year Book Press.)

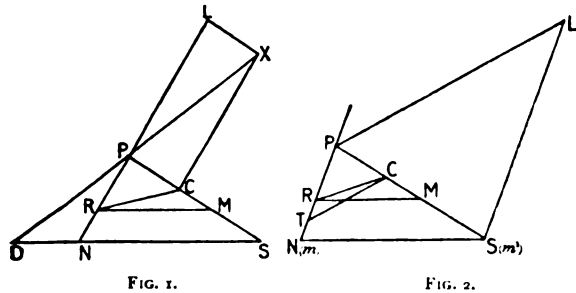
CORRESPONDENCE.

The Editors do not hold themselves responsible for the opinions expressed in letters which appear in these columns. As a rule, a letter criticising any article or review printed in THE SCHOOL WORLD will be submitted to the contributor before publication, so that the criticism and reply may appear together.

Construction for the Direction of a Magnetic Line of Force.

VARIOUS geometrical constructions have been given for obtaining the direction of a line of force at a point near a magnet, although they find no place in the usual school text-books. The following simple method, which, so far as I know, has not been published before, seems eminently suitable for school use, and may prove of interest to some of your readers:

Let N and S (Fig. 1) represent the positions of the poles of a magnet, and P the point at which the direction of the line of force is required. Join PN, PS. From PS cut off PM=PN. Draw MR parallel



to SN, meeting PN in R. From PS cut off PC=PR. Produce NP to L, making PL=PS. Complete the parallelogram PCXL.

Then PX is the required direction since

$$\frac{PC}{PL} = \frac{PR}{PM} \cdot \frac{PN}{PS} = \frac{PN^2}{PS^2}$$

[It is perhaps worthy of note that if XP be produced to meet SN in D then

$$\frac{SD}{ND} = \frac{SP^3}{PN^3}$$

The above method may be extended to obtain a simple expression for the ratio of the strengths of the poles of two magnets. Let N and S (Fig. 2) be the

positions of a north and a south pole of strengths  $m$  and  $m^1$  respectively. As before,  $PM=PN$ ,  $PC=PR$ , and MR parallel to SN. PL is the direction in which a compass-needle comes to rest under the influence of the two poles. CT is parallel to PL, and SL is parallel to NP.

The forces along NP and PS respectively are

$$\begin{aligned} & \frac{m}{NP^2} \quad \frac{m^1}{SP^2} \\ \therefore \frac{m}{NP^2} \cdot \frac{SP^2}{m^1} &= \frac{SL}{SP} \\ \therefore \frac{m}{m^1} = \frac{NP^2}{SP^2} \cdot \frac{SL}{SP} &= \frac{NP^2}{SP^2} \cdot \frac{PT}{PC} \\ \text{But } \frac{PN^2}{PS^2} = \frac{PN}{PS} \cdot \frac{PR}{PM} &= \frac{PN}{PS} \cdot \frac{PC}{PN} = \frac{PC}{PS} \\ \therefore \frac{m}{m^1} &= \frac{PT}{PS} \end{aligned}$$

If, then, we know the direction of CT, i.e., the direction of the compass-needle placed at P, we can get the ratio of the strengths of the poles.

Owing to the difficulty of determining the direction of the compass-needle accurately, we can, at best, get only a rough approximation to the ratio of the strengths of the poles, but if the strengths of the two poles had been compared, say, by a magnetometer method, this construction would give a useful means of verifying the result. The experiment is best performed with a pair of long Robison magnets.

W. H. SCARBOROUGH.

Leighton Park School, Reading.

Grammatical Reform.

To Prof. Sonnenschein every teacher of languages owes a double debt of gratitude, for the active part he took in the preparation of the report of the Committee on Grammatical Terminology and for the illuminating article upon grammatical reform in THE SCHOOL WORLD for July. He has made clear to some who were not prepared to accept in their entirety the recommendations of the Joint Committee, the point of view of the committee and its attitude towards the teaching of grammar, and has led them to reconsider their adverse judgment.

The main lines of the report are as generally acceptable as its issue was timely. Of late years there has been a deplorable tendency in the teaching of languages to avoid what have been called "abstract technicalities." The scholastic world has begun to recognise again that to avoid the use of "significant" terms in the teaching of languages is as impossible as in the teaching of mathematics or science.

One direct result of the absence of formal grammar from the curriculum can be seen in the loose thinking and lax use of words and expressions in everyday speech and writing. With the return of systematic grammar to its rightful place in the teaching of language will come a purer speech and clearer modes and habits of thought. In the secondary school, at all events, the literature lesson benefits, the composition work is facilitated, the speeches in the debating society reach a higher level, and the articles in the school magazine need less editorial revision, wherever there obtains a thorough and scientific study of the grammar of the languages that form part of the curriculum.

Nor will the good results be confined to our pupils. Teachers themselves will feel the advantage and the benefit, unless indeed such a sentence as the following be typical of the majority: "The English master does not feel it his duty to make English the handmaid of Latin." Surely to-day, if never before, in theory if

not in practice, we have reached the stage of correlated subjects and have come to realise that all subjects are but parts of one divided whole. Such a sentence as the above seems to indicate that there is room for concerted action among teachers of languages, and that it is not all for the best that each language should be taught only by its expert. It would seem that the Cinderella of languages, now that she rides in a coach and four, is not one whit more sisterly than were her elder sisters, Latin and Greek (or was it German?), if this be the attitude her admirers would have her assume.

Our mathematical friends have abolished the old watertight compartments of arithmetic, algebra, and geometry; is it possible that it is proposed to substitute others labelled English, French, German, and Latin? Surely those who thus interpret the report have utterly failed to grasp its significance and its intention.

LL. M. PENN.

The County School, Beckenham.

#### Philip's Comparative Series of Wall Atlases.

In the June issue of THE SCHOOL WORLD (vol. xv., p. 235) there is a notice of the series of Messrs. Philip's wall maps dealing with the British Isles, of which we are joint editors. The reviewer suggests that the map showing the density of population is inadequate, and writes: "Teachers of geography may surely look to the map-makers, especially those who make the large wall-maps, for fuller details as to the densities of the population in the industrial areas; the use of mere dots for the towns fails to show the way in which the workers in the factories are spread over the land."

This, with the preceding sentences, may very possibly mislead readers as to the facts actually shown. The map has seven shades of colour to represent densities of population in those districts which do not include large towns, where the density is incomparably greater; the large towns are shown, not by "mere dots," but by three different symbols indicating the number of inhabitants. Consequently, in the particular district referred to by the reviewer, we show the distribution of the population by using five of the seven shades of colour, together with the three symbols for the large urban populations; this, we submit, gives as much detail as is practicable in a map intended for class demonstration.

J. F. UNSTEAD.  
E. G. R. TAYLOR.

July 29th, 1913.

In their letter the joint editors show that they have entirely missed the point of the criticism. It is suggested that the treatment of the industrial areas is inadequate for reasons which will be obvious from the following example. One colour only is used to indicate a density of population greater than 512 per square mile. An industrial area has been taken more or less at random; it includes the two registration districts of the 1901 census for Wigan and Warrington. Excluding the two county boroughs named, which are shown by mere dots, the whole of this area is shown on the wall map in question by one colour only as having a density of population greater than 512 per square mile. Reference to the census report shows that this area includes thirty-one civil parishes, in addition to the two county boroughs. Of these thirty-one parishes fourteen have a less density than 512 per square mile, five have between 512 and 1,024, five between 1,024 and 2,048, four between 2,048 and 4,096, and three between 4,096 and 6,156 per square mile. There is quite sufficient room on the map to indicate some at least of these differences of density,

and to show the fact that Wigan is surrounded by a dense urban population, while the area immediately north of Warrington is less densely peopled with a rural population.

The whole question is, indeed, a much wider one than the example here given suggests. The wall map uses two conventions, a space convention of areal colouring, and a dot convention of different shapes. Between the colours and shapes there is a gap, and the map-maker makes no attempt to bridge this gap. All the colours except the one which indicates a density greater than 512 per square mile show details of rural population which are to some degree immaterial; and no details are shown for the urban population which has spread itself over the land beyond the limits of the towns.

Suppose a teacher informs his pupils, in reply to a question, that the density of the population in Wigan and Warrington, for example, is somewhere between 10,000 and 20,000 per square mile, and the pupils attempt to visualise the crowding together of the people in the neighbourhood of these towns. The data provided by this wall map show that on each acre and a quarter there is at least one person, and that in the towns named the population is about twenty times as dense. Yet the fact is that from Wigan southwards about half-way to Warrington extends a dense population, which, near Wigan, is about nine people per acre, and gradually thins out until near Leigh it is about four per acre, and then north of Warrington thins out still more to less than one person per acre. Surely the map is inadequate!

The criticism, in fine, amounts to this: the wall map, which is typical of many such maps in use, ignores the growth of a dense population outside the boroughs, although this growth has been noted in the maps published with the census reports by means of a special colouring for these urban districts in distinction to the rural districts, for which this wall map gives comparatively too much detail.

Possibly, in future editions, the editors will see fit to revise the scale of density as shown by the colours and remove the present absurdity due to the use of the "mere dots" which, in themselves, at present, give no indication of what the density of the population of a town or city is in reality.

THE REVIEWER.

## The School World.

A Monthly Magazine of Educational Work and Progress.

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# The School World

A Monthly Magazine of Educational Work and Progress.

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SIXPENCE.

## THE EDUCATION OF WOMEN AND DUAL EDUCATION.

By Prof. HERBERT A. STRONG, M.A., LL.D.

*Emeritus Professor of Latin, Liverpool University.*

I WAS privileged by the courtesy of the editors of *THE SCHOOL WORLD*, in a previous article, to emphasise the very great importance of Dr. Gray's book on "The Public Schools and the Empire." The remarks of that great educational authority deal exclusively with the education of boys, and mainly with that of what he calls "the ruling class," *i.e.*, the sons of those parents who send their sons to what we conventionally style our "Public Schools." I wish in this short article to express the view that it were much to be desired that an authority of equal competence with Dr. Gray would favour the educational world with a treatise on the higher education of women, covering much the same ground as that covered by Dr. Gray. I have been teaching mixed classes of men and women for forty years, and have had in the course of my professional duties to examine many ladies' schools, so that whether my opinions be accepted as sound or otherwise, I trust that I have had sufficient experience on which to base those opinions.

If there ever was a time when the education of women claimed particular care and attention in England, it is the present. In the first place, the number of women in our own country very greatly exceeds that of the men, and it is to be expected that this disproportion will continue to increase. No legislation, no course of instruction can alter the fact that Nature has ordained men to be the chief workers of the world, to engage in the most perilous, but still necessary tasks, and to risk their health and their lives to a greater extent than it is the lot of women to do. There is not a daily paper in which we fail to read of more than one accident which has proved fatal to the lives of men. There is not a battle fought, but leaves behind it many widows to

fight the battle of life on their own account. There is not an emigrant ship which leaves our shores that does not make the disproportion between the sexes greater; and as the demands of industrial life become more and more cogent, as the work of the world becomes ever more intense, it may safely be said that, if human progress continues on the same lines, the male sex will continue to include increasingly inferior numbers of individuals as compared with the sex which, though physically weaker, yet has even a larger part to play in the maintenance of a healthy race and a high civilisation than that of man.

It is also observable that the present generation in this country is marked by a spirit of restlessness and unquiet. Nowhere is there complete calm and contentment: toilers of all kinds demand improvement in their lot, and all classes are demanding in notes more or less clear and emphatic equal opportunities of receiving rewards apportioned to their efforts. This restlessness is noticeable quite as much among women as among men, and it seems equally prevalent among those who are non-workers, as among those who are. It cannot be doubted that this restlessness and discontent is the result of the process of education which has been going on during the last few decades, a process which was certain sooner or later to cause all who received it to ask themselves whether they were receiving from the world, under present conditions, all that they might claim to receive for the services which they rendered to it. Answering the question in the negative, they proceed, naturally enough, to consider how the unfair treatment, as they consider it, may best be remedied, and until some such solution may be found it is probable that this restlessness will continue. Of course, this spirit of restlessness will demand and receive in due course such remedies as legislation can bestow. But hand in hand with political remedies it is before all things necessary that the intelligence

of those affected should be developed by an education suited to meet the present needs of civilisation.

First and foremost we have to face the fact that all that has been said about the disastrous effects of mental strain as acting on men during the period of their adolescence, applies with double force to women. It is admitted by all who have any right to speak on the subject that it is imperative that nothing can be thought of more fatal to the future of our race than to exhaust the powers, mental and physical, of girls by overpressure when they are young. To quote Dr. Gray, "Physiology contends that overstrain in mental effort hastens the period of adolescence; whereas the more highly organised the creature, the slower is he (and we might add *she*) in coming to completed growth. Scientific investigations have, in fact, proved that the delicate mechanism of brain structure forbids such premature efforts at brain evolution." In spite of this fact, which is probably admitted by the teaching and examining body generally, we find that the number of examinations by different authorities is ever increasing, and the number of girls presenting themselves for competitive tests is always on the increase. The evil has been augmented of late years by the kindly efforts of philanthropists who have founded numerous scholarships at our local universities, to gain which numerous preparatory ladies' schools advertise their readiness and capacity to prepare pupils. It is not easy to suggest a remedy for this state of things. But it would be culpable remissness on the part of one who has had cast on him the duty of teaching and examining many hundreds of girls for scholarships and degrees to omit to state that he has been painfully struck by the dangerous anxiety in which the thought of an examination plunges many girls.

The question should next be considered whether the same subjects of study are desirable for girls as for boys. Yes! say most of the modern boards of examiners; and the universities, by the prizes which they offer to their students, practically regulate the curricula of girls' schools. I venture to think differently. In the first place, I would wish to see girls blessed or afflicted by fewer subjects than boys, partly because they feel the strain of learning more acutely, and partly because it is desirable to enable them to contract certain mental habits in which they are conspicuously lacking. These can only be acquired if special attention be paid to their cultivation, and in order to secure that end, it is necessary that special attention should be paid to the teaching of subjects likely to secure it. Those who have been much engaged in the education

of women must have been struck by the difficulty felt by most girls in concentrating their attention and in thinking consecutively on a subject. They are also, as a rule, owing to the speed and ease with which their thoughts pass from one subject to another, incapable of any sustained power of reasoning, and still more, of reasoning correctly. They are at a loss to know what is evidence, and what is not.

Again, many girls that I have taught have been well grounded in history or classics and shown a real capacity in that subject; but the same girls have shown a singular ignorance of many of the most elementary subjects. Many women of undoubted capacity have not the smallest understanding of any pecuniary transaction whatever. Very few seem to understand the principles on which sciences are based or to interest themselves in the question. On the other hand, girls seem to me quicker in many ways than boys; they certainly learn languages up to a certain point more readily, and there can be no question of the truth of the statement that those who come to learn are as a rule more keen to learn than the boys of the same age. Now, as it seems clear that in the future most girls will have to work for their living, it should surely be the duty of the educator to equip the young generation with such mental habits as will best enable them to do so. I should wish to see them able to take a much greater share than they are, in this country at least, taking in business careers.

Among the Jews and among the French the capacity of women for understanding and organising business is much more developed than with us, and certainly, so far as I have been able to gather from the French themselves, there are fewer unemployed women among the middle classes than among ourselves. I should therefore wish that girls should be in this generation carefully instructed in mathematics and in logic. They should not be satisfied with committing a rule to memory, but should clearly understand the reasons which justify the adoption of each rule. Formal logic, which to many boys seems merely proving the obvious, would mean, as applied to girls, the revelation of what is not, but should be, obvious. Deductive logic would cause them to reflect and call into exercise their power of judgment and of the weighing of evidence.

Great stress is laid, generally speaking, on the acquisition by girls of some knowledge of modern languages. In very many cases the time devoted to this purpose might be better spent in the perusal of the masterpieces of English literature. Few girls, in my experience, even after obtaining a smattering of French or German at their school, ever have the chance

of employing it conversationally in after life. When they travel on the Continent they rarely meet with foreigners who cannot speak English, and most of the acquaintances which they make on the Continent are British or American. Of course, those who have a taste for foreign literature, or for philology, will form an exception, and it is satisfactory to find that an increasing number of girls are giving attention to these subjects.

It need scarcely be added that those girls who can afford a year of training in house-keeping should not fail to study in some institution like the new Department of Domestic Economy at King's College, London; for it is now recognised that housekeeping, like commerce, needs careful and methodical training.

I now come to the important question of dual education which has been adopted at some few of our secondary schools, and at all our provincial universities. I do not wish to cite the opinion of authorities who have written in support or otherwise of this system. I wish simply to place on record my own convictions, based upon the experience of a life passed mainly in teaching mixed classes.

First and foremost, I think that the curriculum to be followed by the two sexes should in few cases be identical. As I have indicated, that prescribed for girls should be simpler and lighter, dealing with fewer subjects, and these, in some instances, should be treated in a different way. But the point on which I chiefly wish to dwell is the advisability or otherwise of teaching students of both sexes in the same classes, and allowing them the same unrestrained liberty while they are attending university courses. Of course, this system has the advantage of economy in its favour; the same teacher can impart knowledge to both sexes, thus avoiding the necessity of duplicate classes for the two. The use of the library and, generally speaking, of the university buildings is, of course, also an advantage to both sexes alike.

The disadvantages of mixed classes from the point of view of the teacher are first, that the fact that both sexes are present under tuition imposes a certain constraint on the utterances of the lecturer, which it is difficult to describe to laymen, but which is not the less real. This is felt particularly in classes such as those held in classical subjects, where the lecturer has to ask the pupils to construe, and to comment upon the performances of the pupils. He could criticise more definitely and severely before a class composed solely of male students than before a mixed class. He could read some authors under the former conditions which would be impossible in the latter case. The

writer can remember that he had to renounce reading Catullus with a mixed class because the authorities of a large and honoured ladies' college protested that this author would offend the morals of the community to which they belonged. I think that very, probably the authorities were right: I merely cite this as a case tending to prove that "what is sauce for the gander does not always seem the most appropriate seasoning for the goose."

Again, I have found that it is easier and more satisfactory to teach classes composed of either men or women exclusively. The teacher may, like grave judges on the bench, find it advisable to intersperse his remarks with a few jokes, allusions, anecdotes, and similar divagations from his subject, which can be more easily indulged in to a class composed of one sex. This reason will seem no reason at all to the ordinary layman, but it is in my experience well established. Men dislike intensely being corrected before women, and hence they are, generally speaking, shy of giving such answers to their professor as shall enable him to test their understanding of the matter on which he is lecturing. Women, on the other hand, are not averse to showing that they can more than hold their own in the educational arena, when pitted against men; but I doubt whether this particular occasion for the display of their superior capacity is advantageous to their characters; so that it seems to me that men and women alike would profit more if taught apart.

Assuming, however, that it be admitted that men and women should be taught the same things and in the same class, I am quite certain that it is bad for both classes of students; that the unrestricted liberty granted to the women students at some of our local colleges is bad for both sexes. Without any kind of chaperonage or supervision, they are allowed to mix freely with the young men of the college and to form intimacies which may or may not be desirable. They are allowed to join them in all kinds of social clubs, in their sports, and in the smoking concerts of the men, from which they issue with a strong taint of my Lady Nicotine adhering to their dainty garments. The result of such licence seems to me to be a loss of politeness on the part of either sex to the other. The tendency is, too, to render the men less manly and the women less womanly. I read a short time ago a characteristic letter addressed by a girl student to one of the London daily papers, in which she extolled the training offered to her sex at her college, on the ground that it offered so much diversion in the way of soirées and clubs in which both sexes could participate: she added

with some *naïveté* that the education might be as good elsewhere. The constant excitement attendant on these soirées and social functions is certainly not conducive to hard study. It should be further remarked that the freedom of intercourse alluded to does not find favour with the parents of the students belonging to the older and wealthier families, who might otherwise send their children to be educated with those of their poorer fellow-townsmen. I look on this undoubted fact as a great evil for both classes: the one thing necessary to the good ordering of a democracy is surely the free intercourse between class and class.

It is also to be noticed that men students have an objection to be taught and examined by women. It is not for me to say whether this objection is reasonable or the reverse; but that it exists is certainly established to my mind from statements made to me by many old students.

What I suggest is that, assuming that the present arrangements at our local colleges be allowed to exist, the classes of students should as far as possible be divided into those held for men and women respectively. This need involve little or no addition to the existing staff. Next I would suggest that the rooms set apart for the study and recreation of the women should be situated apart from the college, and that women students should not be allowed in the college except for the purpose of study. I would encourage the foundation of hostels for women in which they could receive adequate supervision and aid in their studies, and would wish that the fees in such establishments should be as low as possible.

Most of all, however, to be wished is the establishment of a woman's university pure and simple, attended by none but women students and equipped and instructed to fulfil the real needs, intellectual and moral, of British women. The objection to this ideal seems to come solely from a certain class of women, who allege that the public would always believe that a lower standard would be exacted for their sex than for men. Personally, as I have stated, I think it for the benefit of women themselves that the strain imposed on them should not be as great as that imposed on men; but if it were understood that the tests of progress were really to be as frequently applied and as rigorous in the examinations held for pupils of either sex, it is certain that examiners would carry out their engagements honourably. If such university could be established near an existing university town, abundance of teaching power would be at hand and the libraries, &c., of the university would be open to the lady students. I can only express my earnest hope that for the future battle for

life, which promises to put on both sexes a greater strain than formerly, women may earnestly equip themselves to secure not merely their own individual aspirations, but the permanent benefit of their own race.

### THE HOMEWORK PROBLEM.

By LL. M. PENN, M.A.  
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IT is a fact not without significance to the scholastic profession that the daily Press is devoting much more space than heretofore to the reports of educational meetings and the discussion of educational matters. It may be that the synchronising of the end of the summer term with the beginning of the silly season finds the editors gravelled for lack of matter, and that *faute de mieux* more space is available for accounts of prize-givings and speech-days. Be that as it may, headmasters cannot complain that they have not been in the public eye and have not had opportunities of directing attention to subjects to which the British public, for the most part, either attaches little importance, or is supremely indifferent.

Thus we have read a spirited defence of, and a whole-hearted attack upon, lawn-tennis as a school game; but of the multifarious subjects which either headmasters or chairmen of governors or distinguished guests have chosen to discuss on speech day, there is none which is likely to give rise to greater differences of opinion, and more worthy of serious discussion among all who are interested in education, than the question of homework, upon which the headmaster of King Edward VI.'s School, Birmingham, is reported to have spoken in no uncertain language. It is stated that he declared he would be no party to its abolition, and that the educational value of home-lessons was even greater than that of the lessons done in school. The kernel of truth within the paradox every reader of *THE SCHOOL WORLD* will recognise. Do we recognise, also, the undoubted truth, unpalatable as it may be, that to most parents homework is an unmitigated nuisance, and to all boys seems an unnecessary evil? To justify the "nuisance," and to prove the "evil" to be a "good," is the purport of this article.

Many volumes have been written upon the relative value of the subjects in the curriculum, the time that should be allotted to each, the principles of organisation; much attention has been paid, of late years, to the physiology and psychology of overstrain, weariness, inattention, and the like; the necessity of shorter lessons and "the mutation of crops" have been emphasised; the demand for physical training, the study of the personal bias, and the

claims (legitimate and otherwise) of the home circle upon the time of the pupil have called for, and received, recognition, but at no point do the interests and requirements of parent, teacher, and taught converge and conflict as they do upon this problem of homework; and upon no part of the school-life of the boy or girl has there been bestowed less serious and thoughtful consideration.

The subject, therefore, must be looked at from three points of view: those of the parent or guardian, the teacher, and the pupil. Now we have in this country three types of secondary schools: (1) those in which all the pupils are boarders; (2) those in which some are boarders and some are day-pupils; (3) the day-schools. Corresponding to these three types of schools, we have two types of parents: (1) the parents of the boarders; (2) the parents of the day-pupils. It is obvious that little need be said about the parents of the first type; for the headmaster or housemaster, standing, as he does, *in loco parentis* to his boarders, may well be expected to look after himself, and, in the interests of law and order as well of his own comfort and leisure, will see to it that his boarders do "preparation" nightly under supervision. *Mutatis mutandis*, what holds good of the master applies also to the mistress.

When, however, we come to deal with the parents of day-pupils, we are face to face with another series of "propositions." Such parents fall into three groups or divisions. In the first place, we have a small minority of parents who are genuinely interested in their children's progress, who are loyal to the regulations of the school, and insist that their children shall do their allotted work. Failure or inability on the part of the pupil to do his (or her) homework invariably means a note of explanation or regret. Usually, also, the proverb "like father like son" holds good, and the cooperation of teacher and parent for the common end is as hearty as it is salutary. The children of such parents *dignitatem et decus ludorum nostrorum sustinent*. If, as sometimes does happen, such a parent suggests that home-lessons do encroach upon the hours of sleep or leisure of the pupil, the master is assured that the protest is well founded, and is naturally ready to make the necessary readjustment.

In the second place, we have another small section of parents who are interested equally with the former in the progress and work of their children, and have themselves some knowledge (more or less expert) of school methods and educational theory. If it be the fate of a teacher to come into conflict with such—and a conference of ideas not infrequently leads to a conflict of opinions—it is

well to bear in mind Lord Mansfield's advice, or to refer the matter to your superior and chief, who, it may be presumed, combines the wisdom of the serpent with the harmlessness of the dove.

In the third group we place the great majority of parents, many of whom are too busy to see that the homework is properly done, more quite unconcerned as to their children's progress; forgetting that without their collaboration the teacher can do but little, they neglect to exercise parental authority, and blame the school for deficiencies for which they are themselves in great measure to blame. It is by these that homework is regarded as an "unmitigated nuisance," and a cunning device of idle teachers. In dealing with their children it is safe for the teacher to act *in loco parentis*; provided that the parent is relieved of responsibility, and the onus of getting the homework done does not fall upon him, it is unlikely that any question will be asked; and it is possible, moreover, to get the homework done with consistent regularity, even if it be not done at home. In many schools, upon payment of a terminal fee, the homework is done on the school premises under the supervision of a master. By such parents the transfer of responsibility, for a consideration, is readily made, and the plan is well worth a trial. Such attendance at "supervised homework" might well be made compulsory on the part of those pupils who consistently neglect their work, and experience has shown that, whether the attendance be optional or compulsory, the results meet with the approval of the parents when the terminal reports go home.

When we come to consider the points of view of the teacher and the pupil, we are confronted by problems so complex and so intricate that it is difficult to find satisfactory solutions to them all. At the outset we assume that by the imposition of homework the teacher is not wishful to shift the burden from his own shoulders to those of the parent. Such a charge—not infrequently made—needs no refutation in these columns. Every practical teacher knows, and every sensible parent recognises, that under present conditions it is impossible within school hours to do all the work that ought to be done in any given day. Five-and-a-half hours daily may be taken to represent the average maximum time that can be spent in actual teaching. There are few teachers who will dare to assert that the maximum amount of work possible is done in that time. In other words, the pupil has not, during the hours of school; exhausted his brain energies, or, to use a sporting metaphor, "run himself out." If this be true, then it is right and proper that further work should

be set, in order that the pupil, like the blacksmith, may realise that he has earned his night's repose.

We are all, teachers and pupils, the creatures of circumstance, and under present conditions, when we come to the ultimate diagnosis of the problem we are discussing, we are driven to the conclusion that it is neither desirable nor feasible that the day-pupil should be absent from his home longer than, say, from 8.30 a.m. to 5 p.m. When he himself enters upon his commercial or professional career, it will be quite soon enough for him to learn that for the business or professional man the home is, in the majority of cases, not much more than a dormitory. It will be good, also, for our pupils that they should learn in their youth that much work in the world has to be done amid the distractions and conflicting calls of social duties and social pleasures. It will be profitable for them to put into practice at an early stage the truth of the saying, "where there's a will, there's a way." Homework, since it thus affords opportunities for the exercise of self-control, may become a valuable constituent in the making of character.

Assuming, then, that on the grounds of mental economy and moral training, homework is an indispensable factor in education, we have various practical difficulties to reckon with and to overcome. In actual experience we find that such questions as these are constantly cropping up. Should pupils of all ages have homework? If not, to whom should exemption be given? What type of homework should be set? Should it cover new ground, or revise past work? How much time should the preparation of homework occupy? Here, again, as we attempt to answer the questions proposed, we are compelled to consider each from the varying points of view of the teacher and the pupil, the class or form and the individual. To come, then, to our first question: Should pupils of all ages have homework? And its corollary: Whom, if any, are we to excuse? Or we may put the questions in another form: At what age should homework begin? It is easy to generalise, it is hard to particularise; so that, as always, special cases must be judged upon their merits. We shall not go far wrong if we say that in the preparatory stage, up to the age of ten years, there should be little or none. We say "little or none," because it is just at this age that individual characteristics are most striking and call for special treatment. We are fully convinced that in the vast majority of cases no harm will be done if during the tenth year a start be made. We do not believe that at this stage any tax would be made upon the pupil's mental energies, and we do think

that an economy of valuable school hours would be effected, if there were required as homework some, at least, of the kindergarten and manual work, in which preparatory forms delight and revel: for instance, we would set four or five lines of the copy-book to be done, a diagram or a map which had been drawn in school, to be coloured in chalk or paint, some simple object to be found at home to be drawn. At this age boys and girls are keen and enthusiastic, and in the winter months, at all events, we think our suggestion is at once desirable and feasible, and would provide pleasurable and profitable employment for twenty to thirty minutes. It has the great advantage of giving the parent some inkling of the work the child is doing in the school; that some parents do care to know this, and all have the right to know, we too often forget.

We have somewhat anticipated here the answer to our next questions: What type of work should be set, and how long should it take? In the lower forms above the preparatory, we hold that the home-lesson should invariably necessitate some writing or drawing, and that the time required to complete it should not be more than forty-five minutes. Neat work should, above all, be insisted upon, and at this—indeed, at every—stage it is a good fault to err on the side of requiring a little less rather than a little more. In an age of hurry and hustle and "get-rich-quick" methods, it behoves the teacher to be exacting as to quality, if lenient as to quantity. As to the character of the work to be done, the writer holds that there should always be required outward and visible signs that the regulation time has been spent upon the work, and that it is contrary to all sound educational theory and practice to set work that involves learning by heart, for an evening task.

In the middle school, where the pupils' ages range from thirteen to fifteen, less mechanical work may and should be expected. It is now possible to set, whether in languages or mathematics or other subjects, lessons (still to be done in writing) which bear upon the class-work already done; *e.g.*, we would require a translation of a piece of Latin which has been done orally in class, a short paper in the mathematics covered during the week, with one question, at least, which would involve the use of the text-book to secure a correct solution; in English, an essay or composition upon a subject that has already been discussed and the method of treatment outlined in class; and so on. One great reason why so much homework is unsatisfactory from the teacher's point of view, irksome to the pupil, and a nuisance to the parent, is because we too often are prone to make it the sole opportunity of



the week for original research in the dictionary, &c., or for original thinking to be produced in the form of an essay. At this stage in the school, two lessons should be the limit, and if two are set, they should not involve at the outside more than ninety minutes' work. Here, again, we shall not err if we are content with the result of seventy-five minutes' honest toil. One result of requiring too much and too many subjects is "cribbing."

In the upper school, two, or, at the most, three, subjects are usually prescribed: personally we are in favour of assigning one evening to one subject. Our school periods are now so short that we give to our pupils few opportunities of reading an author, except in homeopathic doses, or of taking a comprehensive and leisurely survey of a subject. Our experience is that willing students appreciate the opportunities thus afforded, and make proportional progress; if the less studious fail to do the required minimum, they find it less easy to justify their failure, and cannot throw the blame upon one or other of your colleagues. Whether the suggestion of "one evening, one subject" be adopted or not, there can be no doubt whatever that too much homework is required of our upper forms. It is by no means an uncommon thing to hear of boys and girls in the upper fifth and sixth forms who spend three or more hours per night upon their home-lessons. Two hours is the maximum that should be expected.

It is often forgotten that such pupils have reached the age when they are expected (and rightly) to interest themselves in domestic concerns, and are permitted to associate with their parents on terms of greater equality than their younger brothers and sisters, and the day school, at all events, has no right to lend its countenance to anything which tends to weaken the domestic tie and interfere with the claims of the home circle. What possibility of knowing and understanding his father in these days has the studious youth, who conscientiously applies himself to his homework as soon as the evening meal is over, or the girl of indulging in intimate conversation with her mother, who fears to disappoint an inconsiderate or thoughtless mistress? The prevalent practice, which is to set an excessive amount of homework to our senior pupils, is fraught with danger of another kind. Our pupils do not, for the most part, have enough sleep. We hear much in these days of the interference with the liberty of the subject. Oh for a Draco who would enact, with severe penalties for transgression, a law requiring that every child under fifteen should be in bed by 9 p.m., and every youth and maiden under

eighteen should retire to rest by 10! "If they sleep, they shall do well." The curtailment of the hours of sleep of our pupils is responsible for 90 per cent. of the "nervous breakdowns," of which we hear so much.

'Tis nervous prostration, 'tis fever within;  
He calls it a sickness, I call it a sin.

The average working hours in the secondary school with which the writer is associated amount to twenty-seven per week for all but the preparatory forms. In the lower and middle school, three hours per week are assigned to physical drill (or swimming) and manual training. The maximum time, therefore, spent in purely mental work is twenty-four hours per week. If we assume, then, that homework of the lower school involves forty-five minutes' preparation, of the middle an hour and a quarter's, and of the upper two hours' per day, we find that the time devoted to work per week works out at 26½, 30½, and 37 respectively. Dr. Dukes, in his well-known work "Health in School," maintains that the amount of work that may fairly be expected from the average pupil is as follows:

Ages 10-13	...	...	24 hours per week
" 13-15	...	...	30 " "
" 15-17	...	...	36 " "

These ages correspond very closely with the ages of the lower, middle, and upper divisions of the normal secondary school. Necessary deductions being made for the time lost in change of lessons (thirty-six per week), it will be seen that the amount of homework prescribed in this article should not, if we accept Dr. Dukes's figures as correct, involve any mental overstrain, and does not exceed the capacity of the average pupil. It is interesting to notice that the same authority frankly admits that "there are times when boys may and must do more work, even double this scale," and that "they may work thus hard for a season with impunity," provided that they have sufficient light and air, do not live in the same air day and night, and do not neglect their daily exercise.

The conclusion, then, we arrive at is that homework is necessary, legitimate and beneficial; *necessary*, because otherwise as much work would not be done, as *ought* to be done; *legitimate*, because, if graded and arranged as on the lines suggested, it does not involve more mental strain than the average pupil *can* undergo; *beneficial*, because, unless the working school-hours are lengthened, the mental machine is *not* doing the amount of work which it is equal to doing, and to that extent fails to fulfil its purpose and design.

## COMPULSORY REGISTRATION OF SCHOOLS.<sup>1</sup>

By the Right Rev. J. E. C. WELLDON, Dean of Manchester.

MY subject is the compulsory registration of all schools, public or private, and of all institutions giving instruction technical or general, with the qualifications of the teachers, and I have been asked to treat the subject in its special relation to such schools as are associated with the Church of England.

In considering the subject, I begin by stating two principles which will, I hope and think, find general acceptance.

One is that in education, as in other professions, the age of private adventure is past. The State, which has come more and more to regard itself as a trustee for the physical and moral welfare of the people, will not and cannot allow ignorant persons to trade for their private interest upon the simplicity and credulity of their fellow-citizens. If, then, it is necessary to require special qualifications from surgeons and doctors, and, as has lately been argued, from dentists, then as teaching is the most difficult and responsible of the professions, it follows that an unqualified and uncertificated teacher ought to be unknown and impossible.

The second principle is that it is desirable to ensure, as far as possible, the unity of every great profession. As the medical or the legal profession is one, so the educational profession is, or ought to be, one. There is more difficulty in coordinating the educational profession than any other profession, because universities and schools are not only so widely parted from each other, but also are so widely parted among themselves. When I was a schoolmaster, it was so difficult as to be practically impossible to get an agreement upon so small a point as the date of the Easter holidays among the headmasters of secondary schools, or, indeed, of such secondary schools as are represented at the Headmasters' Conference. Yet the schools, whether they be public schools or others, cannot in the long run remain, I think, divorced from the State; and if the greater or the more independent schools are expected to make some sacrifice in order to put themselves into line with the other schools, they must forgo something of their historical isolation for the unity of the profession as a whole.

It is interesting to notice that when their Majesties the King and Queen, on July 10th of the present year, gave a garden party at Buckingham Palace to the teaching profession,

they were careful to invite among their 5,000 guests representative teachers from schools of all classes and grades in the educational hierarchy.

A recent writer in the educational supplement of *The Times* has well said that "No occupation or calling can be regarded as worthy of the name 'profession' until those who pursue it are constituted in some corporate bond which enables them to speak with the authority of a united voice, not merely as servants of the community, but as honoured and trusted servants, discharging their office, whether public or private, with a fair measure of freedom and independence." It is a matter, then, of deep satisfaction that a Registration Council should have been called into being as representative of the teaching profession, and that it should include, or be capable of including, members drawn from all the different ranks and grades of education.

But registration, whether of schools or of teachers, or of both, if it stood alone, would not carry the profession far. Registration means, or must in the end mean, both inspection and examination, viz., inspection of the buildings and examination of the teachers in all schools. Registration is, in fact, the first step to the general control of the State over all educational institutions.

It is difficult to see why anyone who cares for education should resist the inspection of school buildings. Nothing is more certain than that teaching, however good it may be in itself, is apt to be vitiated by insalubrious sanitary conditions, by noisy, over-crowded class-rooms, by deficiencies of light, warmth, and accommodation, and by disturbing agencies outside the school itself. It is possible that the elementary schools, or, at all events, the elementary Council schools, are now organised on too lavish and luxurious a scale. But there can be little doubt that at schools like Eton and Harrow some few of the class-rooms within the last fifty years have been wholly unfit for the education of any boys, not to say boys whose parents could afford to pay the highest school fees. Again, if the examination of teachers means that in the humblest, as in the richest, of schools nobody shall act as a teacher without possessing, and being known to possess, certain qualifications, it can be nothing but an educational gain. It would eradicate Mr. Squeers and all his colleagues; and if anybody supposes that Mr. Squeers is, and always was, a sheer exaggeration, it is only necessary to scrutinise the educational advertisements in the number of *The Times* issued on the day of Queen Victoria's coronation. The evil of unqualified teachers

<sup>1</sup> A paper read before the Educational Science Section of the British Association, Birmingham, September, 1913.

is not adequately realised, because the world will fix its eyes on the great schools, and will forget the many schools which are not, and can never hope to be, great. Even one who hails from Manchester may safely say that the age of *laissez faire* in education is past. It is scarcely less an evil to allow an indefinite number of unlicensed teachers than to allow an indefinite number of licensed public houses. I was once living at a hill-station in India, where the only dentist was a lady practitioner, who candidly told her patients that if they submitted themselves to her hands she would do her best for them, but she thought they would be wise if they bore the toothache without having recourse to her services. It seems to follow that in all professions, and therefore in the educational profession as much as any, registration, with inspection and examination as its necessary concomitants, is the only system which ensures efficiency.

I must frankly admit that I am in favour of letting in the light of day upon all schools. It is desirable to open the windows for the sake of letting in the light, or, at least, as men say in the North, for the sake of letting out the darkness. If mines and factories cannot safely or wisely be left without supervision, neither can schools. Wherever I come upon a repugnance to inspection or examination, I cannot help suspecting that something is wrong. If it is urged, for instance, that schools attached to religious institutions, such as monasteries or convents, should be exempted from public control, the inference is, or at least the fear is, that in those schools there is some element which it is thought desirable to screen from public knowledge. Wherever I have known a headmaster—and I have known such a headmaster—who declaimed against the public examination of his school by an external authority, or wherever I have known the master of a part of a school, such as the modern side—and I have known such a master—who shrunk from such a public examination, I have always thought that he was consciously or unconsciously afraid of his weakness being revealed.

It is true, indeed, that inspectors and examiners are not infallible. They may be very irritating persons. They are sometimes comparatively young men, possessed with ideas of their own and strangely inexperienced to the possibilities of educational success. I would plead as strongly for consideration among inspectors and examiners as for candour and efficiency among teachers. But there is no surer sign of efficiency than the desire of publicity. It is a matter then of great satisfaction to me that the headmaster of Harrow should, as I understand, with the full

assent of his governing body, have sought the expert judgment of the Board of Education upon his school. For, after all, the difficulties which will, or may, arise between the great public schools and the Board of Education are removable, and will in time be easily removed; but an air of suspicion and dislike between them is a lasting evil.

If, then, the registration of schools is the principle for which all true lovers of education will contend, is there any reason why schools belonging to the Church of England should dislike or distrust it? No doubt denominational schools have of late been somewhat hardly used. Persons who value, as I do, denominational education, are naturally anxious lest the keen eyes of external authorities should detect points in which such schools are weaker than the Council schools, and should use that weakness as an argument for a universal system of undenominational teaching. But while any Government which should aim at stamping out denominational religious teaching in schools would court and meet failure at the polls, it is not desirable that the denominational character of schools should be made a pretext or an excuse for lowering their intellectual standard. The true aim is not to bring education down to the level of denominational schools, but to raise denominational schools to the true educational height. It seems to me, therefore, that, when the principle of registration is once admitted, it must be applied to all schools, and among them to the schools of the Church of England as much as to any others.

I am trying to take a far-sighted view of the educational future. I feel that the schools which have been able to dispense with the administrative sanction of Government must forgo their independence, that it may be possible to strengthen the less highly privileged schools, and still more to eliminate schools which ought not to exist at all. I am sure the Church makes a mistake if she does not put herself at the head of every movement which tends to the intellectual and moral elevation of the people. I hope, therefore, that however gradual and cautious may be the steps by which the educational profession as a whole is consolidated into unity, there will in the end be no exception to the law which provides for the certified efficiency of all schools, whatever may have been their origin or history, or whatever may be now their character or sympathy.

The one danger which it is necessary to avoid, as well as to foresee, is the danger of uniformity. The hand of the State is apt to lie heavy upon institutions which are recognised and subsidised by the State. Yet no

mistake can be more serious in its consequences than to suppose that the State has spoken, or can speak, the last word upon educational reform. Inspectors and examiners, armed with the authority of the State, if they succeed in raising schools to a certain level, may easily prevent them from rising above that level. All that the State can properly do is to ensure a minimum of efficiency. If it aspires to do more, it may well impair the higher efficiency of which a particular school may be capable.

Education is not only a science, but a progressive science. Its goal to-day is, or should be, its starting-point to-morrow. It is probable that if all sciences have still much to learn, none has more to learn than the science which deals with human nature. There is great need and ample room for experiments; but in education, as in all science, discoverers are often impeded in attempting or effecting reforms if they have reason to fear that their reforming energy may bring them into conflict with a power so much stronger, as the State is, than any individual. Great, then, will be the responsibility resting upon inspectors and examiners, that they may keep their own minds open; that they may be willing to understand and appreciate new educational ventures, even such as run counter to their own favourite theories; and that they may never cease to regard the good of the coming generation—not the convenience of parents or masters, or even of inspectors and examiners themselves—as being the true and only legitimate end of all education.

### EDUCATIONAL RESEARCH.<sup>1</sup>

By C. W. KIMMINS, M.A., D.Sc.

THE attitude towards educational research has undergone a remarkable change in recent years. The psychologist is bending his energies more and more towards the solution of important questions of practical education, and the practical teacher is recognising to a far greater extent than previously the great assistance psychology can render in the solution of the problems of the schoolroom. The change of attitude is well exemplified by two books by the same author (Prof. Hugo Munsterberg, of Harvard)—“Psychology and Life,” published in 1899, and “Psychology and the Teacher,” published in 1910.

Whether there is a true science of education or whether such a science is in course of development is not a matter of concern at the moment. What is of more importance is that

of recent years scientific methods of investigation have been extensively employed in the solution of educational problems, that universities have regarded such investigations as being worthy of the award of the highest degrees they can offer, and that increased facilities have been given for students of psychology and of the theory and practice of education to take these subjects to a high university standard in their degree courses in Arts and Science (see the recent alterations in the Degree Courses of Study in the University of London).

The so-called “Downfall of the Theory of Formal Training” is a matter of first-rate importance in its relation not only to methods of teaching, but also to the allocation of time to many subjects in the school curriculum. Dr. Sleight’s thesis on “Memory and Formal Training,” for which he was awarded the Doctorate in Literature at the University of London, has an all-important bearing on questions relating to the cultivation of memory.

For a considerable time problematical arithmetic has, by common consent, been given a place early in morning school. A careful research recently published, however, gives an account of experiments which show that better results can be obtained by taking this subject at a later hour in the morning, except in the cases of poor children who do work before coming to school. Many such investigations could be quoted to show the great importance of bringing scientific methods of investigation to the questions of school organisation. Such an investigation as that carried out by Mr. Ballard on “What London children like to draw,” published in the *Journal of Experimental Pedagogy* for March, 1912, is an excellent example of a stimulative and suggestive piece of work.

From a long list of important questions, which need careful scientific investigation, may be mentioned:—

1. The age at which a child should commence to read and write.
2. The best method of teaching reading.
3. The number of hours a child can profitably spend in school at a given age.
4. The most suitable length of lessons for children at different ages.
5. The most satisfactory tests of intelligence.
6. The effect of handwork on other branches of instruction and on general mental efficiency.
7. The varying attitude of children towards certain subjects at different ages.
8. The advisability of intensive work at certain stages.
9. The extent to which clever children mature late.

<sup>1</sup> Abstract of a paper read before the Educational Science Section of the British Association at Birmingham, September, 1913.

10. The degree to which the curricula of girls' should differ from those of boys' schools.

11. The relative amounts of fatigue experienced in learning certain subjects at different ages.

It would be a great advantage if experimental work in the psychological laboratory could be brought into closer relation with that of the classroom. The results obtained in the classroom should be verified in the laboratory and *vice versa*. In the classroom the conditions are exceedingly complex and difficult to control, whereas in the laboratory the conditions are simplified as much as possible and may become somewhat artificial. Important results obtained in the laboratory should receive more attention in the school. Similarly, important experiments carried on in the schoolroom should receive the attention of the practical psychologist. It is this forward and backward movement from practice to theory and from theory to practice that will contribute most effectively to genuine advance in education.

A paper read at the Conference of Teachers in London in January, 1913, by Mr. Pear, of Manchester, on "Recent Researches on the Subject of Attention," affords remarkable evidence of the practical bearing of laboratory research in psychology on the problems of the schoolroom.

The mass of valuable information which can be obtained from the papers written in connection with the examination of children of various ages in all large centres of population forms an admirable field for work from many points of view, but the statistics must be collected and their significance explained by experienced observers. In America much valuable material has been obtained from the evidence afforded by examination papers of children of different ages.

The number of university students taking educational research for their thesis in higher examinations is increasing rapidly, but it is still in no way commensurate with the importance of this department of knowledge as compared with the amount of research carried on in other departments. The whole matter requires careful organisation, and increased facilities are needed for research. Research fellowships in education would, in this connection, be of the greatest value to the community and a great stimulus to the science of education.

With advanced work of this kind the difficulties with regard to organisation are not serious, as the students carry on research under university professors in well-equipped institutions, but in more elementary work, for which there is a large field for workers in many de-

partments, the organisation is more difficult, especially where the correlation of laboratory work and schoolroom work is desirable.

Probably the most effective form of organisation would be the establishment of a board or advisory committee, consisting of professors of education, psychologists and practical teachers, in large centres of population, either under the control of the university or the local education authority, which would be largely responsible for expert guidance and sanction, where necessary, in connection with the conduct of important experiments. In this way teachers wishing to take part in experiments could obtain advice, be warned against the more common errors into which they are likely to fall, and, where they desire it, obtain that necessary training which would qualify them to take part in important investigations in various capacities.

### THE NEED FOR EXPERIMENTAL EVIDENCE OF THE VALUE OF HANDWORK.<sup>1</sup>

By P. B. BALLARD, M.A.

THE manual training movement is in one respect singularly favoured. Forming an essential part of the larger educational movements of recent times, it shares their momentum and partakes of their popularity. Every new tendency seems to contribute to manual training its quota of impetus. Whether the organism is emphasised, or the environment; whether the child, with its instincts and interests, absorbs our attention, and we regard child-study as affording the basal data of education; or whether we fix our attention on the environment, and become convinced of the supreme value of vocational training—whichever view we take, handwork assumes equally great importance. Whichever side comes uppermost, handwork wins.

It thus happens that theories and opinions about its value as an educational pursuit are abundant and clamorous. But its actual adoption in the schools is another matter. So far as the degree of development is concerned, the practice of handwork stands midway between opinion and proof. There is more opinion than practice, and more practice than proof. Regarded in itself, the headway made by the practice of handwork within the last five years in the middle of the elementary school is indeed remarkable; but it still lags far behind the current professional creed, and is itself far in advance of that part of the creed which is capable of scientific demon-

<sup>1</sup> A paper read before the Educational Science Section of the British Association at Birmingham, September, 1913.

stration. What we now need is less opinion and more proof. And in maintaining this view I by no means wish to disparage the outburst of enthusiasm which has given the manual-training movement so strong an impulsion; nor to imply that the theory of handwork is unique in respect of its unscientific standing. All the other branches of instruction are in precisely the same case. But that is no reason why we should not endeavour to place the theory of handwork on a firmer basis of demonstrated fact.

I venture, therefore, to put forward in this paper one or two types of evidence of a statistical and experimental nature, slight enough in themselves, but sufficient to suggest other experiments, and to indicate the kind of testimony likely to carry the greatest weight. I arrange them under four heads, leading off in each instance with the statement of a dogma which stands in need of elucidation and proof.

(1) **HANDWORK DEVELOPS INTELLIGENCE.**—This is a tremendous claim, and difficult to establish. It involves the assumption that there is a general faculty or function called intelligence, as distinct from the specific abilities by which it is manifested and measured; that this function is cultivable; and that handwork can cultivate it. As the first two of these are problems which as yet are only partly solved, a complete answer to the third problem is at present impossible. The clue to its solution is probably to be found in the doctrine of correlation. About two years ago I calculated by means of Spearman's formula the amount of correlation between manual dexterity and general intelligence (the order of intelligence was decided by the teachers) in two large elementary schools of different types. The school in the poorer neighbourhood had in the three departments twenty-one classes, and the school in the better neighbourhood thirty-two classes. Although the results were somewhat unsteady, the tendency in both schools was identical. The correlation coefficient was high in the lowest class of the infant school (about 0.6), and there was, on the whole, a general decline in the amount until the highest class in the senior school was reached, where it sank to 0.3. Broadly speaking, the correlation was positive, and diminished with age. The results need verifying in other schools, and in any case require to be interpreted with the utmost caution.

Before we can validly infer that the handwork had influenced intelligence, or, having influenced it, had less and less effect as the child grew older, we must first answer at least three questions: (a) Is the amount of correlation indicated above higher than what normally exists between all forms of natural

ability? (b) Does the high correlation mean that the connection between the two functions is causal? (c) Is not the decline with age merely a particular instance of a general law, viz., that the correlation between abilities lessens as those abilities are practised? Many investigations must be made, and many years must pass, before a complete answer to these questions can be hoped for.

(2) **A REASONABLE TIME GIVEN TO HANDWORK RAISES THE LEVEL OF ATTAINMENTS IN THE OTHER BRANCHES OF INSTRUCTION.**—Here we are on surer, or at least more demonstrable, ground. The evidence put forward in support of this dogma is generally of the most precarious kind—often of the nature of hearsay, or at best a mere casual impression. The main obstacle in the way of proof is the difficulty of maintaining constant all the conditions save one, and of obtaining an objective measure of results.

The most trustworthy record we possess of the relative efficacy of the teaching in the middle of the London elementary schools is provided by the marks obtained at the Junior County Scholarship examination of the London County Council, regard being had to the proportion of children presented in each school. Of the schools which I knew best I selected five where the most handwork is taken; and I compared the marks obtained in those schools in February, 1909, before handwork was introduced into any of them, with the marks obtained in November, 1912. The former examination was more difficult than the latter, and it was necessary to standardise the results before a fair comparison could be made. The first four schools were attended by boys, and the fifth by girls. Comparing the standardised marks, there was in school A a loss of 4 per cent., in school B a loss of 2½ per cent., in school C a gain of 50 per cent., in school D a gain of 26 per cent., and in school E a gain of 12 per cent. The loss in school B was partly explained by a larger number of children presented (sixteen in 1909 and twenty-one in 1912), and the gain in school C by the smaller number presented (twenty-three in 1909 and fifteen in 1912). In the other schools the numbers were about equal for both examinations.

More definite evidence is afforded by a comparison of these five departments with the corresponding departments of the same schools attended by children of the opposite sex. School A, for instance, is a boys' department. In the girls' department on the same premises no handwork is taken. Although on the whole the handwork-taking departments presented more children than the other departments, the average marks obtained were in every instance

higher. The actual percentages of advantage were twenty-five, one, sixty-five, thirty, and four, respectively.

I admit the meagreness of the data and the presence of certain unsatisfactory elements in the grounds of comparison, but the evidence, such as it is, tends to support the view that handwork has the effect of raising the standard of efficiency in the academic branches of study.

One quite unexpected effect of the practice of handwork has forced itself upon my notice—an improvement in English composition. That handwork should affect the arithmetic is readily conceivable, but that it should influence the composition is a little surprising. Yet such seems to be the case. Although girls, as a rule, are more proficient in composition than boys, yet in each of the four boys' departments referred to above higher marks were obtained for composition than in the corresponding girls' department.

(3) CERTAIN OF THE MORE ACADEMIC BRANCHES OF STUDY ARE BEST TAUGHT PRACTICALLY.—I will give one definite instance of the advantage of learning by doing over learning by listening. About a year ago an ingenious piece of apparatus for teaching fractions was brought to my notice, and I was empowered to test its efficacy by experimenting in one of the London elementary schools. A large mixed school was chosen where the headmaster took an exceptional interest in mathematical education. The only classes in this school where fractions had not been dealt with at all were the lowest two, consisting of boys and girls about eight years of age. All the brighter of those children were put into class A, and the rest formed class B. For six months both classes worked at precisely the same scheme of fractions for precisely the same time per week. Indeed, the conditions of study were as similar as possible, except that class A (the brighter class) was taught by means of the apparatus, which was manipulated and explained by the teacher, while class B (the duller class) was allowed to measure in fractions, to cut out pieces of paper, to compare them by superposition, and so forth. It must be understood that the apparatus used was really as admirable a device as could possibly be conceived for rendering the equivalence of fractions and the simple operations perfectly clear. And yet when the two classes (fifty-four children in one and fifty-two in the other) were tested by me after six months' time, class B did better than class A. Of ten questions set, both classes got the same marks for three, class A got higher marks for two, and class B higher marks for five. Enormous as was the advantage of superior natural in-

telligence, it was in this contest outweighed by the advantage of learning by doing.

(4) THE INTRODUCTION OF HANDWORK INTO A SCHOOL TENDS TO REDUCE THE NECESSITY FOR CORPORAL PUNISHMENT.—I do not know whether this assertion has ever been definitely made before. But whether or not, I boldly and confidently put it forward now.

The effect of handwork on the necessity for corporal punishment is typically shown by the records of school D referred to above. Although it is attended by a good class of boys, the school had under the previous headmaster attracted attention by the inordinate number of cases of punishment. The record for the last six years is as follows:—

Year ... ..	1908	1909	1910	1911	1912	1913 (1st half)
No. of cases	1406	1070	746	745	521	280

In 1909 the school was increased in size, and there was a change of headmaster. Since 1910 the *personnel* of the staff has remained unchanged; yet in 1912, when handwork was introduced, there was an immediate drop in the number of punishments.

In school C, where an increasing amount of handwork has been taken since 1911, the number of entries in the punishment book are again seen to decrease, thus—

Year ... ..	1911	1912	1913 (1st half)
No. of cases	540	502	134

In school A, where handwork has been taught for a somewhat longer period, the same tendency is observable:—

Year ... ..	1910	1911	1912
No. of cases	213	190	176

The other two schools afford no indication one way or the other; because in school E (a girls' school) the number of punishments has always been very small, and in school B the record of punishments was inordinately swelled last year through an exceptional number of out-of-school offences.

Other inquiries which I have made, and which need not be recorded here, fully convince me of the truth of the general rule that punishments tend to decline as manual occupations increase. And they decline through the removal of the worst and most disheartening type of offence—insubordination to the teacher and hostility towards the very spirit and purpose of schooling. Indeed, handwork helps to reconcile the pupil to the school. His general attitude towards his teacher and his training seems to undergo a radical change for the better. Hatred is often changed to liking, and liking to loving. And striking thus deep into the emotional life of the child, handwork cannot fail to modify his whole moral and intellectual nature. It is indeed not unlikely

that much of what has in the past been ascribed to a direct transfer of training from manual work to mental work is really due to an indirect influence. The service of the hand reaches the head through the heart.

Of the many alleged effects of the practice of handwork I have dealt with but four. And if I were pressed to give my opinion as to the degree of certainty with which they are supported by evidence, I should reply that the first is possibly true, the second probably true, and the third and fourth certainly true.

#### EDUCATION AT THE BRITISH ASSOCIATION.

IN considering the work of the educational science section of the British Association, at the Birmingham meeting this year, one cannot fail to be struck by the signs of activity, and by the interest taken in the section. Although one of the youngest of the sections of the association, it certainly appeared to be one of the most flourishing, apparently sharing with section A, *i.e.*, the mathematical and physical section, the honour of securing the largest attendance at its meetings. This is probably due to the fact mentioned by the president, that education is a subject on which almost every adult inhabitant of this kingdom regards himself as an authority. It is certainly true that in the main no expert knowledge was necessary to follow and understand most of the papers delivered to the section, although it does not follow that expert knowledge is not necessary for their proper appreciation or criticism.

Another point worth notice, too, was the fact that comparatively few schoolmasters were present, at least local schoolmasters. Many were present during the meetings of the association, but the time spent in the educational meetings was comparatively small. This cannot be regarded as strange, however, for many of the best and most successful schoolmasters, though keenly interested in actual teaching, are very averse to talk about it; while most schoolmasters are keenly interested in other subjects discussed at the meetings. For example, it can scarcely be wondered at that schoolmasters with a science bias should prefer listening to a discussion on radiation in which Rayleigh, Lorentz, Jeans, Love, Thompson, and so on took part, than to one upon the aims and working of a modern university; or that many would find the various papers on Mendelism, heredity, mimicry, Egyptian antiquities, the excavations at Uriconium, the structure of the atom, English town development, aëronautics, the flow

of solids, gipsy customs, and many others of more interest than those on the teaching of reading, or on spelling reform.

The address of the president, Principal E. H. Griffiths, F.R.S., the main part of which appears elsewhere and deserves careful consideration, has probably aroused more interest and discussion in the Press than any other of the sectional presidential addresses. Yet there are many points on which secondary-school teachers will not find themselves in full agreement with the distinguished president. In general it is doubtful whether the general pessimistic tone of the address will be shared fully. The quotation, also, regarding the small value of our present-day primary education to the manual worker will have little weight with the conscientious schoolmaster who does not regard the provision of effective manual workers as his sole or even chief duty. With the statement that the aim of our education should be the formation of character rather than the giving of knowledge, all schoolmasters will agree, but it must not be forgotten that the two are not antagonistic, and he who thinks solely of the first is very likely to miss both; and the plea that the aim of the schoolmaster is character-formation which is unseen has been largely used in the past as a cloak to hide weakness in many essential and obvious particulars.

The president also commented on the fact that whilst thirty million pounds are spent on elementary education, only four millions are spent on higher education; but although all secondary-school teachers would gladly welcome an increase in this four millions, it must be evident that any expenditure on higher education would be valueless unless it supplements a completely adequate expenditure on the elementary education. The president of the Chemical Section also in advocating post-graduate scholarships in place of some of the present lower-grade scholarships, appeared to overlook the fact that the ultimate selection of the most efficient can only be obtained by the careful sifting of the various grades of efficiency, and the gifted boy cannot reach the top grade unless provision is made for an adequate number of starters. Many teachers also will regard the praise of the Boy Scout movement as exaggerated, and the president was at fault in attributing to the distinguished General, Baden-Powell, the initiation of the prefect system in Warwickshire elementary schools. This movement was due to a headmaster who, when an assistant in a secondary school, had seen the value of the system.

The presidential address was followed by a joint discussion with the Anthropological



Section on the educational value of museums. This was, on the whole, of little interest to teachers, but the numerous pleas brought forward by the speakers for proper labelling, and for systematism and order in the arrangement, may be regarded as an indictment of many of our museums—that at Birmingham is certainly no exception. None of the speakers noted the admirable example given in this respect by the small but well arranged Hutchinson Museum at Haslemere. The plea, long ago urged by Huxley, the great pioneer of so much pertaining to science, that local museums should be really local was emphasised by Dr. Haddon.

On the Friday a lengthy discussion took place upon the function of the modern university. The discussion was opened by Sir Alfred Hopkinson, who commented on the changes brought about by the growth of the numerous new universities. Their aim should be threefold: (1) to raise up a due supply of persons fitted to serve the State; (2) to be centres from which high educational ideals should radiate; and (3) to add to knowledge. Sir Philip Magnus noted approvingly the tendency to enter the universities at an earlier age than in the past, and considered that boys would gain by entering at seventeen rather than at nineteen. He considered that the university should seek to exercise some control over the secondary schools within its district, so that the instruction in these schools should fit boys for university training, while doubtless teachers as a whole would not resent some university control. Yet the danger of the neglect of proper consideration of the educational needs of the great majority of the pupils who do not proceed to universities is obvious. Sir James Yoxall pointed out what is becoming increasingly evident, that in the near future there will be very great difficulty in finding occupations for men of such high qualifications as in the past had been thought to imply the right to high pay.

On Monday, September 15th, a joint meeting with the Psychological Section was held. The report of the committee appointed to report on the influence of school-books upon eyesight was presented by Dr. Auden. This is published by the Association at the price of 4d., and can be obtained from the offices in Burlington House; it is well worthy of perusal and consideration by teachers. A number of educational authorities have already ordered that all books used in their schools shall be printed as advised in the report. The paper by the Rev. J. Knowles on the need of a common alphabet for the vernacular languages in India, although not much related to the work of teachers, was of considerable interest, and

much sympathy will be felt for the Indian teacher when it is known that in the various Indian scripts there are at least 20,000 symbols to represent fifty-three elementary sounds, and that the distinct alphabets employed in India outnumber all the other alphabets used by the remainder of the world.

The address by Dr. Kimmins, entitled "A Plea for Research in Education" (p. 370), was the starting-point of a valuable discussion. The opinion of the meeting was evidently with Dr. Kimmins when he welcomed the co-operation of the psychologist with the schoolmaster, and stated that it would be a great advantage if experimental work in the psychological laboratory could be brought into closer relation with the classroom. Incidentally, he noted that recent experiments showed that the first period in the morning was not, as is generally believed, the best time for problematic mathematics. He threw out a few suggestions of subjects which might be investigated. He pleaded strongly for increased facilities for educative research and proper organisation. Dr. Myers, in opening the discussion, considered that in the past teachers had been too much dependent on the views of pure thinkers and not on practical investigators, and that real advance would not be effected until "systems" and "isms" were done away with and guidance looked for from the results of real experimental work. Prof. Findlay was of opinion that there was a danger of the experimental psychologist obtaining undue influence in education, and wished for a wider recognition of the attempts at research by the teachers themselves in various schools in the country. Prof. J. A. Green remarked that while any amount of money could be spent in seeking to prolong life, it is not forthcoming when the aim is to find how to make most of life; and that, while England spends next to nothing on educational research, large sums are spent for this purpose in Russia. The teaching profession suffers from the lack of truly *professional* knowledge such as that possessed by the lawyer or the medical practitioner, and the status of the teacher would be considerably enhanced if he had such a store of professional knowledge, but this can only be obtained through educational research. A plea for the national organisation of the subject was also made by Mr. Cyril Burt.

Papers on the psychology of spelling were next given. Miss Suddard, in giving an account of the method in use at the Fielden Demonstration School, said that the difficulty of teaching spelling was due to the fact that the speaking and reading vocabularies were acquired at a far greater rate than the writing

vocabulary, and that the good spelling of many elementary schools was really due largely to a very limited vocabulary. It was best to avoid the start of a wrong spelling habit, and for that reason "free" composition was delayed so as to keep the writing vocabulary as much as possible under the control of the teacher. A communication from Miss Fairhurst was read by Prof. Myers, but the experiments are incomplete, and a more complete account was promised for a future meeting. Prof. Green analysed various types of spelling errors. The majority are due to the attempt to follow the sounded word—sometimes the standard sound, sometimes the local sound—but common mistakes are due to permutation of the letters such as "hte" for "the." Frequently the mistakes are due to word-building, as "ogd" for "dog" where the child has learnt "og" as a standard sound varied by the addition of "d," "c," "l," &c., while mistakes such as "mthr" for "mother" appear to be due to the "look and say" method of reading. It was found that with unknown words spelling was far better if the word is written than if it was merely spelt.

The audience as a whole seemed largely in sympathy with Sir Oliver Lodge when he indicated his opinion that education had far more to do with spelling than spelling had to do with education. Sir William Ramsay addressed the meeting on spelling reform. He considered the system outlined by Pitman as the best plan, but English people would not be induced to accept a plan which introduced ten additional letters, and hence the plan was adopted by the Spelling Reform Association of doubling or combining letters—he thought the system was a sound one. It is very doubtful if many of his audience were converted. Dr. Valentine, in a paper on method in teaching reading, described some experimental work which indicated that the phonic method was distinctly better than the "look-and-say" method.

Dr. McIntyre detailed a number of experiments on practice improvement in immediate memory in school children, the chief result of which seemed to be that practice in memory-training (such as memory of nonsense syllables) improves mechanical memory very rapidly, that the improvement is permanent, and of much use later in ordinary school work. Dr. Lewis described experiments which indicate that in teaching to spell the best method is by syllables rather than by letter or as a whole.

Mrs. C. M. Meredith, in considering the excessive use of suggestion in education, urged that suggestion should be used very cautiously, and that although a child cannot in most cases reason adequately, he should be

trained to reason in the future, and not be trained to accept unreasoned convictions without criticism.

The registration of schools was discussed on the Tuesday. Bishop Welldon considered it necessary, on the grounds both of the welfare of the child and status of the teacher. Miss Sophie Bryant considered that the registration of *private* schools would increase their efficiency and save many parents from costly mistakes in their choice of school. Mr. Ernest Gray suggested compensation in the case of those who lost their means of livelihood by the closing of their schools, a view from which Mr. Alfred Mosely strongly dissented. Bishop McIntyre, speaking from the Roman Catholic point of view, said that the State had the right to prevent citizens from being defrauded, and hence to see that schools were efficient; but the home and the right of parental control must be respected. Registration was also advocated by Mrs. Shaw and Mr. Eggar.

A number of valuable papers on the value of handwork were next presented, the readings being by Messrs. Ballard, Fowler, Usherwood, and Lewis. Mr. Ballard, as the result of statistics and experiments, considered it possibly true that handwork develops intelligence, probably true that it raises the level of attainment in other branches of instruction, and certainly true that it tends to reduce the necessity for corporal punishment. He also commented on the undoubted advantage of *individual* practical work in other subjects. Mr. W. F. Fowler described manual work done in his school. Mr. Usherwood gave a paper on the method in use at Christ's Hospital, and on the value of manual work. The aim of such work is not merely to cultivate manual dexterity, but also, and more especially, to obtain from it its full value on education in developing alertness, self-reliance, thoughtfulness, and character. He emphasised strongly the necessity of a supply of effective instructors, a specially trained class, qualified socially and intellectually to meet their colleagues on equal terms.

#### THE TEACHING OF ENGLISH IN AMERICAN HIGH SCHOOLS.

UNDER the guidance of an influential committee organised by the U.S. National Education Association, the chairman of which is Mr. Hosis, of the Chicago Teachers' College, a syllabus or handbook is being prepared to help teachers and students in high schools in all matters connected with the study of English. These schools are for most students finishing schools; students get no further help, and the handbook should prove a

valuable result of widespread thought and cooperation. As a means of insuring this, the report is, we gather, being sent broadcast to educational papers. A very brief summary of it is here given.

The problem of English in the schools will be studied *ab initio*; the claims of many differing communities will be considered, and the calls of modern active life will be carefully regarded.

With this ideal before them the various sub-divisions of the committee will undertake to select material and outline activities for the successive years of the course. The groundwork of composition will consist of those projects for speaking and writing which young people can be made to feel are worth while. Rhetorical theory will thus be made to serve as the handmaid of expression, not the occasion of it. Books for reading, likewise, will be selected because they are capable of producing a genuine reaction, not because they are illustrative of literary history. In both composition and literature, there will doubtless be a shift of emphasis towards those subjects and activities which are of greatest value in active life—toward oral expression, for example—and toward modern books and periodicals. It is not to be inferred, however, that the supreme values inherent in the world's literary masterpieces will be overlooked.

The general plan of the syllabus will include an account of the work of the committee, a summary of work now accomplished, a general course suggested, large additions in regard to elective courses, advice on reading, dramatisation, literary history, equipment of classes, &c., along with a bibliography. The committee consider that the aim of secondary English is fundamentally two-fold—utilitarian and æsthetic (these are our words); and all subsequent details may be massed roughly under one or other of these headings. A *questionnaire* is appended.

We are at once struck with the thoroughness of the inquiry and with the character of it. Questions such as the following do not usually find a front place in our own schools. How are students to collect materials for oral discourse? How are indexes, catalogues, and reference books to be used? How is cursory reading, with a view to the grasp of essentials, to be carried out? How is the gist of a lecture or piece of literature to be gained instantly? How should stories be dramatised? How may students be trained to address and conduct a public meeting? Should American books have preference?

But it is abundantly clear that the whole report treats English and English studies in what, without any disrespect, we may call the scientific manner. No fewer than thirty-three out of all the questions view English work and English literature as a *means* to writing

a good letter, speaking a logical and effective speech, criticising a work accurately, and judging a masterpiece intellectually. It is true that in one place enjoyment and noble ideals are mentioned; but wide memorising, personality, the incommunicable sense, the real functions of high literature, escape any definite reference. This distinguishes the report from similar productions at home; and though home may be wrong, this distinction seems to us basal. That we may not be thought unfair we append the actual words of the "notes."

All expression in speech demands distinct and natural articulation; correct pronunciation; the exercise of a sense for correct and idiomatic speech; and the use of an agreeable and well-managed voice. The speaker should be animated by a sincere desire to stir up some interest, idea, or feeling in his hearers.

All expression in writing demands correctness as to formal details, namely, a legible and firm handwriting, correct spelling, correctness in grammar and idiom, and observance of the ordinary rules for capitals and marks of punctuation; the writer should make an effort to gain an enlarged vocabulary, a concise and vigorous style, and firmness and flexibility in constructing sentences and paragraphs.

All bookwork should be done with a clear understanding, on the student's part, as to what method of reading he is to use and which of the purposes mentioned above is the immediate one. To form a taste for good reading it is desirable that a considerable part of the pupil's outside reading be under direction. To this end, lists of recommended books should be provided for each grade or term. These lists should be of considerable length and variety to suit individual tastes and degrees of maturity.

These fundamental aims should be implicit in the teacher's attitude and in the spirit of the class work, but should not be explicitly set forth as should the immediate aim of each class exercise.

#### PERSONAL PARAGRAPHS.

**M**R. JAMES F. HOUGH, whose appointment as headmaster of Brentwood Grammar School was chronicled last month, was educated at Wolverhampton School and St. John's College, Cambridge. He has for ten years been second master at the school of which he is now head. His promotion is very popular in Brentwood among parents, boys, and masters.

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**THE REV. EDWIN BEAN**, whom Mr. Hough is succeeding, was a scholar of Clifton College and Trinity College, Oxford. Mr. Bean was for three years senior classical master at Sydney Grammar School, for eleven years headmaster of All Saints' College, Bathurst, New South Wales, and has been for twenty-two years headmaster of the Brentwood Grammar

School, whose numbers have increased during this time from forty to 220. Mr. Bean will return to Australia in January.

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THE death of the Rev. W. F. J. Romanis, formerly a master at Charterhouse School and preacher at The Charterhouse, occurred on August 31st. Mr. Romanis, the son of a noted preacher of scholarly attainment, was educated at Lancing College and Trinity College, Cambridge. Shortly after leaving Cambridge he became a master at Charterhouse, under Dr. Haig Brown, while the school was settling down to its new circumstances and surroundings at Godalming. Mr. Romanis was a man of great insight into boy nature, took a keen interest in public-school life, and exercised a great and lasting influence on all the boys with whom he came in contact. He became a housemaster in 1881, and retired from the school in 1907. In 1910 he succeeded the Rev. H. V. le Bas as Preacher of Charterhouse, but in 1912 his health gave way, and a nervous breakdown compelled him to resign.

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MR. E. F. HAMER, of the Grammar School, Hull, has been appointed headmaster of Bentham Grammar School. Mr. Hamer was educated at Heath Grammar School, Halifax, and Yorkshire College, Leeds. He has held masterships at Kilburn Grammar School, Warksworth Grammar School, where he was second master, and at the Hull Grammar School.

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MR. C. A. HOWSE, of Whitgift Grammar School, Croydon, has been appointed headmaster of the Grammar School, Kingston-on-Thames.

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THE REV. W. A. PARKER MASON, of the Perse School, Cambridge, has been appointed headmaster of Hulme Grammar School, Manchester. Mr. Mason was educated at Dulwich College, King's College School, and Trinity College, Cambridge. As a master he has had varied experience at the Royal Grammar School, Sheffield, Middlesborough High School, Blundell's School, Tiverton, Dean Close School, Cheltenham, Merchant Taylors' School, Crosby, and Perse School, Cambridge. Mr. Mason is a keen and up-to-date educationist, a Fellow of the Royal Historical Society, and a Member of the Historical Association, the Classical Association, and the Assistant-masters' Association.

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PRINCIPAL GRIFFITHS, in his address as president of the Education Science section of the

British Association, spoke of the general dissatisfaction of English employers and English educationists with English education. Had he visited a few of the watering places on the Normandy coast and heard the French spoken by English schoolboys and schoolgirls, no matter from what type of school they came, he would have realised the ineffectiveness of the work done on the modern side. Here and there he would have heard an English child, probably a girl, making her wants known in intelligible French; but, on the whole, it is impossible to be proud of our nation's French!

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MR. A. F. SANDYS, of Morpeth Grammar School, has been appointed headmaster of a new school at Staunton-on-Wye. The school is to be a rural science school; boys and girls are to be admitted both as day pupils and boarders. Mr. Sandys was educated at University College, Reading, and has had experience as a master at Blandford Grammar School, a private school at Birchington, and Morpeth Grammar School.

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THE removal of Strand School to Brixton, and the transfer of its management from the Governors of King's College to the Education Committee of the London County Council, have necessitated the retirement of the senior master, Mr. D. R. Macleod. He joined the staff of the school in 1893, before, indeed, it was a school; since then he has been one of the hardest workers of a hard-working staff, and has been, too, one of the chief agents in enabling a number of civil servants to secure their appointments. For many years he had one of the school boarding-houses, and this, in conjunction with the detailed preparation he always gave to his lessons, prevented his taking an active part in public discussions on educational subjects. His thoroughness and devotion have done much to build up the school, and he now goes into retirement with the best wishes of pupils, colleagues, and friends.

ONLOOKER.

#### PRONUNCIATION OF LATIN IN SECONDARY SCHOOLS.

A FEW years ago the Board of Education succeeded in making nearly all schools use the reformed pronunciation of Latin, after most of them had been protesting for many years that it could not be done. The same Board has now issued a more detailed paper on Latin pronunciation, in which certain common errors, mostly due to carelessness, are guarded against. These hints seem to be very sensible and drawn from experience. One in particular has not been given before—the

caution not to recite *amābām, amābās, amābāt,* and so forth. Probably this is inseparable from the recitation of tables, if often done, and it might have been suggested that this recitation takes up too large a part of the Latin hour. But this hint is given too gently: it might well have been expanded into a paragraph, in which stress, accent, and quantity could be carefully distinguished, with examples in musical notation. We are quite sure that nearly everyone confuses them, and that scarcely one in a thousand really prolongs a long vowel. Yet the speakers are all blissfully unconscious.

Probably the English (or French) equivalents of the Latin sounds are close enough for practical purposes; but it does seem a pity that the equivalents were not given in phonetic script. Surely the time is ripe for that; it ought not to be possible to say that the sound of English *prey* and French *blé* are the same, nor are German *ü* and French *u*, nor are the first sounds in English *we* and French *oui*, nor, indeed, is the Latin *v* either English *v* or *w*.

But these are less pressing matters than that of quantity, to which we return in the hope that at last some real pains may be taken to give its effect. Virgil and Horace read with observance of quantity are wholly different from what we usually hear—most musical, and with a different proportion in the parts. The hexameter is not to be read in three-time, but in four-time; it is a march, not a gallop.

Some extracts from the Circular are subjoined:—

In 1907 the Board of Education issued a circular recommending for general adoption in schools the scheme of Latin pronunciation which had been drawn up by the Classical Association. It appeared to the Board that it was its duty to do all in its power to assist in establishing one uniform system of Latin pronunciation which could be used in all schools; it was evident that the scheme put forward by the Classical Association was the only one that could effect that object, and it did not appear that it would present any serious difficulties in practice.

The experience of the last six years has confirmed the Board in this view. The extent to which this scheme has been adopted makes it clear that it is only by continued adherence to it that any uniformity can be secured, and the reports received from the Board's inspectors show that in those schools in which care and attention are given to the matter, no serious difficulty is met in securing substantial accuracy in the use of this pronunciation.

There is still in some schools a good deal of uncertainty and carelessness in the actual pronunciation even when the new scheme has been in theory adopted. In particular there is often a disregard both of quantity and of accent. One of the chief reasons for the neglect of the proper accent is that in the earlier stages of learning Latin the use of the spoken

language is still to a large extent confined to a repetition of the paradigms of the substantives and verbs. The result of this is that pupils get into the habit of throwing the stress on to the last and inflected syllable, and thus acquire the habit of always using the wrong stress. Wrong stress again inevitably leads to wrong quantity. The proper means of guarding against this danger and the only method of easily acquiring correct pronunciation is by constant oral work, especially in the first steps of learning the language. The pupils should always be required to give their Latin version of English sentences orally and to read aloud the Latin sentences which they study. During the later stages of their course, the greatest attention should be paid to the careful reading aloud of the texts of the Latin authors in prose as well as in verse. When this is done the right pronunciation and accent will be easily acquired, and this practice will greatly help in giving a command of the Latin language.

The rules for pronunciation as set forth by the Classical Association are printed below. The examples given do not profess to be more than a tolerably close approximation to the vowel sounds of Latin as spoken at any particular period in ancient times. On some points of detail our knowledge is incomplete, and moreover a completely accurate representation of the sounds of Latin cannot be given without the use of sounds and symbols not usually employed in English. In all cases the Latin vowels are nearer to Continental than to English sounds.

**QUANTITY.**—In pronunciation the quantities of the vowels must be strictly observed: e.g., *ā* in *lābor*, as the first *a* in English *aha*; *i* in *minor*, as in English *dinner*; *ō* in *nōta*, as in English *not*. This is essential for the proper appreciation in prose, of sound, rhythm, and distinctions of meaning (e.g., between *lābor*, I glide, and *lābor*, labour), and in verse, of metre also.

**VOWELS.**—The following is approximately the pronunciation of the vowels:—

*ā* (*prātum*), as *a* in *father* (not as *a* in *mate*).  
*ā* (*rāpit*), the same sound shortened, as *a* in *aha*.  
*ē* (*mēta*), as *e* in *prey*, French *é* in *blé* (not as *ee* in *meet*).

*ĕ* (*frĕta*), as *e* in *fret*.  
*ī* (*fīdo*), as *ee* in *feed*, or French *i* in *amie*, *arrive* (not as *i* in *fine*).

*ī* (*plīco*), as *i* in *fit*.  
*ō* (*nōtus*), as *o* in *flown*, or more nearly as Italian *o* in *Roma*.

*ō* (*nōta*), as *o* in *not*, French *o* in *connu* (not as in English *note*).

*ū* (*tūto*), as *oo* in *shoot*, Italian *u* in *luna* (not as *u* [yew] in *acute*).

*ū* (*cūtis*), as *u* in *full* (not as *u* in *accurate*, nor as *u* in *shun*).

*y* is not a native Latin letter, and is only used in transcription of Greek words: it is pronounced, when short, as French *u* in *du*; when long, as French *u* in *une* or German *ü* in *grün*.

**DIPHTHONGS.**—The sound of the diphthongs may be arrived at by running the two component vowel-sounds

rapidly together, the second being pronounced lightly. The most important are—

ae (*portae*)= $\overline{a+e}$ , nearly as **ai** in *Isaiah* (broadly pronounced), French *émail* (not as *a* in *late*).

au (*aurum*)= $\overline{a+u}$ , nearly as **ou** in *hour*, or more exactly as Italian **au** in *flauto* (not as *aw* in *awful*).

oe (*poena*)= $\overline{o+e}$ , nearly as **oi** in *boil* (not as *ee* in *feet*, nor as *a* in *late*).

The following diphthongs occur more rarely:—

ui (*huic, cui*)= $\overline{u+i}$ , as French **oui**.

eu (*heu*)= $\overline{e+u}$ , nearly as English **ew** in *new*.

ei (*ei* interjection, or *Pompei, voc. of Pompeius*)= $\overline{e+i}$ , as **ey** in *grey* (not as *i* in *dine*).

CONSONANTS.—*c, g* are always hard.

*c* (*cepi, accepi*), as **c** in *cat* (not as in *acid, accept*).

*g* (*gero, agger*), as **g** in *get* (not as in *gibe, exag-gerate*). So even before *i*.

*c* (*facio*), as **c** in *cat* (not as *s* [*fasio*], nor as *sh* [*fashio*]).

*g* (*tegit*), as **g** in *get* (not as *g* in *gibe*).

*ng* (*tangit*), as **ng** in *finger* (not as in *hanging*).

*t* is always hard, even before *i*.

*t* (*fortia, ratio*), as **t** in *native* (not as in *national*).

*s* is always a breathed, dental sound.

*s* (*sub, rosa, res, sponsio*), as **s** in *gas, sit, sponsor* (not as in *rose* or *raise*; nor as in *conclusions*).

*x* (*exul*)=**cs**, as in *extract* (not *gs* as in *exact*).

*i* and *u* consonantal.

*i* (*j*), e.g., *iacio* (*iacio*), as **y** in *you* (not as *j* in *Jack*).

*u* (*v*), e.g., *volo* (*uolo*), practically as **w** in *we*, French **ou** in *oui* (not as *v* in *very*).

*qu* (*qui, quod*), as **qu** in *queen*.

*gu* (*unguere*), as **gu** in *anguish, gw* in *Gwendolen*.

*r* is always trilled, even in the middle and at the end of words, e.g., *rarus; parma, datur* (not pronounced as English *palmer, hatter*).

Double consonants, e.g., *vacca, pullus*, are pronounced separately, as they regularly are in Italian, or as in English *book-keeper, oil-lamp*.

ACCENT.—If the penultimate syllable is long, it has the accent; if the penultimate syllable is short, the ante-penultimate has the accent, e.g., *negāret, agrēstibus*. But in disyllables the penultimate, whatever its quantity has the accent, e.g., *tēnet*.

The accented syllable was pronounced with greater force as well as on a higher note; but the differentiation in force was considerably less than in English. The separate syllables of a Latin word should be more evenly and distinctly pronounced than in English, and more nearly as in French.

#### NOTES.

Quantity.—Very great general ignorance of quantity is observed in many schools. The most serious errors arise from the false use of accent, which produces, e.g., the shortening of the *e* in words such as *amaverunt* or *monēbant*. In some schools sufficient care is not taken to check this; there is also a tendency to ignore the distinction between the short and

long final *a*—no difference being made between, e.g., *bonā* and *bonā*. The *is* of the dative plural (*bonis*) is also often pronounced short.

Vowels.—Many teachers consistently mispronounce the short final *e* as equivalent to the French *e* in *le*: in a word such as *bene* the second *e* should have the same sound as the first.

The English sound *yew* is still often given to *u*; this seems to occur most frequently after the letters *t* and *d*. Pupils who pronounce *luna* and *lucem* rightly will mispronounce *tu, duo, ducem* and *tulit*. The short *u* in words such as *ut, ubi* is also sometimes mispronounced like the *u* in *shun*.

Consonants.—The *c* before *e* and *i*, and the *t* before *i* seem now to be generally rightly pronounced, as are the letters *c* and *g*. The older errors have been to a great extent eliminated. On the other hand, *r* is seldom properly sounded, particularly when it stands before a consonant, as in *compertus, perfectus*. *S* is also frequently mispronounced as *z* in words like *rosa, milites, ingens*. The influence of French sometimes leads to a mispronunciation of *qui*.

## AN EDUCATIONAL RETROSPECT.

WE have now had forty years' experience of compulsory education, and more than ten years' experience of the working of the Education Act of 1902. We are spending at the present time out of the rates and taxes about thirty-four millions per annum upon education. It seems reasonable, as a nation of shop-keepers, that we should ask if we are getting value for our money, and the reply will, of course, depend on what we mean by value, for the man in the counting-house, the man in the street, and the man in the schoolroom all have different standards of valuation.

Some of us are old enough to contrast the position of to-day with that of forty years ago. Do we observe any definite advance in knowledge, intelligence, character, or manners, as compared with the pre-compulsory days? We must all be aware of the tendency to magnify the past at the expense of the present, but, after making due allowance for the fact that "the past seems best, things present ever worst," it appears difficult to find distinct evidence of improvement in any way commensurate with the sacrifices which have been made.

I have taken every opportunity of ascertaining the views of men of varied occupations and differing social positions upon this matter, and I confess that the impression received is one of universal discontent. The complaints are not only of want of knowledge, but also, which is far more serious, of want of intelligence.

Consider the following extracts from the presidential address of Mr. Walter Dixon to the West of Scotland Iron and Steel Institute in October last:—

"I have, over a somewhat extended period and a wide area, made inquiries amongst those who have

1 From an address delivered to the Educational Science Section of the British Association at Birmingham, September 11th, 1913, by Principal E. H. Griffiths, Sc.D., LL.D., F.R.S., President of the Section.

the control of about 200,000 men in our own allied industries, with the following results:—

"It is the unanimous opinion that any book-learning outside the rudiments of 'the three R's' is considered a matter outside the requirements of the education of more than 90 per cent. of the usual manual workers. In other words, the work that these men are called upon to do, the labour which they have to perform in their daily avocation, would be as efficient, as successful, and as expeditiously performed if the men had no school education whatever outside 'the three R's.'"

If there is any truth in this severe indictment there is still cause for wonder if a general sense of uneasiness exists amongst those who consider that the future prosperity and safety of this country are dependent on the manner in which we train the rising generation.

In justice to Mr. Dixon I must give a further extract from his address:—

"During the recent meeting of the British Association in Dundee I spent some time amongst educational authorities, not only those belonging to our own country, but delegates from other nations, and I find that they themselves are beginning to see the futility of the present methods and to realise that they are ploughing the sands. Amongst other matters, it was of interest to note that they are at present promulgating a scheme for what they call vocational education. In other words, I gather that they are now attempting in a modified way to replace the old 'prentice system by teaching trades in their schools, so that children may enter the trades as skilled workers—a system which, to my mind, would render the present confusion more confounded. . . . We must recognise that the mechanical developments of the last half-century have done away in a large measure with the possibility of the interest which a man could once take in his daily work, inasmuch that few men now make anything, but only a *small portion of something*. A statement was made at Dundee that 135 different persons were employed in the making of a boot. It is not to be expected that any of these 135 workers can get enthusiastic about their particular bit. We must recognise that as long as we live under the reign of industrial competition the hours of labour are likely to be hours of stress, and that when a man has finished his labour it is only right, it is only human, that he should have hours of reasonable recreation. It is with a view of making these hours of recreation worthy of the nation to which we belong that I feel that our educational methods might, and ultimately will, be altered and rendered valuable."

If I may venture to summarise Mr. Dixon's address as a whole, it appears to me that the argument is somewhat as follows: It is admitted that "the three R's" are necessary for all workers, of whatever grade, almost as necessary for the mental as are sight and hearing for the physical equipment. A large majority of manual labourers, however, are not rendered any more efficient in the discharge of their tasks by further instruction of an academic character, and, therefore, we should aim at providing them with some form of education which would so quicken their intelligence as to enable them to find an interest in matters

external to their employment and thus lead them to utilise their hours of recreation in a sane and healthy manner. It should be our object not so much to train all our soldiers as if they were to be generals, as to give them that education which would make them good soldiers, and to spare no expenditure of time or money in the further education and development of the small percentage who have shown those qualities which lead, under proper guidance, to high achievement.

The assumption that all children are fitted to profit by more than the rudiments of academic education is, I believe, responsible for many of our present difficulties. In physical matters we seem to be wiser. We take account of bodily disabilities; we do not train lame men for racing, or enter cart-horses for the Derby; we do not accept the short-sighted or the colour-blind as sailors; but those who talk of compulsory further education appear to think that all men are on an equality as regards mental equipment. Democracy in its control of education counts noses rather than brains. I observe, for example, that the education committees on which I have, or have had, the honour of serving, are unwilling to continue those higher technical classes in science in which the numbers are necessarily small. A class of four in higher mathematics will probably be discontinued, whereas a class of one hundred in shorthand will be regarded as a highly successful achievement.

Such education committees, however, are only carrying out what is apparently the policy of those sitting in the seats of authority. A nation which expends but four millions for the encouragement of higher education and research and thirty millions on the rudiments cannot be said to lend that recognition, assistance, and encouragement to the best brains of the country which is the one form of educational outlay which is certain to bring, as Mr. Wells has truly indicated, not only the best return industrially, but also an immunity from invasion otherwise unobtainable.

It is possible that the views taken by Mr. Dixon and the employers and business men whose opinions I have attempted to gather are unduly pessimistic. I have, therefore, turned naturally to the teachers, with many of whom I am brought into contact.

I find, on the whole, much the same spirit of pessimism prevailing. I can only recollect one gentleman—a teacher of long experience and high standing—who takes a brighter view of the position. According to him, the children leave our schools better instructed, more intelligent, and better mannered than was the case some twenty years ago.

It is true that teachers as a body agree that there has been one real advance—viz., the abolition of the system of payment by results—but many of them admit that during the past ten years progress, if any, has been slight. They plead in extenuation that the large size of the classes is in itself a barrier to real efficiency, and that the teacher is so fettered by regulations, so bothered by the fads of individual inspectors, that we ought to be gratified, rather than disappointed, by the results achieved. It is a significant fact that the supply of teachers for our primary schools

is diminishing, and that, as a necessary consequence, the proportion of fully trained and qualified teachers, although increasing, is unduly small. The attractions of the profession are undoubtedly insufficient. When we consider the meagre salaries, the slow, very slow, promotion, the few prizes, and the slight social recognition, it is a surprising fact that so many able men and women are prepared to accept the lot of teachers in our primary schools.

If the results of our educational system are disappointing, it is not for us to throw the blame on the teachers. Until we learn that satisfactory results can be obtained only when the life and emoluments of the schoolmaster are such as to offer avenues to distinction comparable with those of the learned professions, we cannot hope to attract into what should be, after all, the most important of all professions, the best brains and energies of the community.<sup>2</sup>

Undoubtedly, however, we *have* made advances within the last generation. Our outlook is different, but we are expecting higher achievement without affording that inducement which entitles us to demand it. Our industrial needs have impressed upon us the necessity of a wider view of the meaning of the word "education." We are slowly learning that we should aim at the awakening of the intelligence, rather than at the mere imparting of knowledge by what I might term force-pump methods. Forcible feeding is not proving a success either physically or mentally.

Some fifty years ago a leading name in the educational world was that of Todhunter—a name which I admit was regarded with terror rather than affection by many of us in our schooldays. As a correction to pessimism I venture to inflict upon you the following extract from Todhunter's "Conflict of Studies," published in 1873:—

"It may be said that the fact makes a stronger impression on the boy through the medium of his sight, that he believes it more confidently. I say that this ought not to be the case. If he does not believe the statement of his teacher—probably a clergyman of mature knowledge, recognised ability, and blameless character—his suspicion is irrational and manifests a want of the power of appreciating evidence, a want fatal to his success in that branch of science he is supposed to be cultivating."

I take a singular pleasure in this extract. In times of depression it serves as a tonic and drives one to the conclusion that, after all, our progress, however slow, is real, although I have an impression that the Todhunter school is not entirely extinct.

So far, the only result of my inquiries had been the discovery, if discovery it was, that dissatisfaction with our present system was the prevailing sentiment. I decided, therefore, to take the somewhat bold step of endeavouring to ascertain the attitude of those who have most to do with the administration thereof. I ventured to send to all the directors of education in England and Wales a series of questions, the answers to which I hoped, might throw light on the matter.

In order to elicit, if possible, free expression of opinion I stated that their replies would in general be used only for statistical purposes, and in no case would indication be given of the authority with which the writer was concerned.

In analysing the replies it has been necessary to divide them into the following classes, viz. : (1) Counties, (2) county boroughs, and (3) boroughs and urban districts, as the conditions in these areas, under the Act of 1902, differ considerably.

We must remember that as the directors of education have to work the machinery, they are perhaps in a better position than any others to form a judgment as to excellences and defects. True, they look on the matter through official spectacles, which are always more or less tinted, and they may, like many owners of motor-cars, have a tendency to hide imperfections.

In class 1 (counties) I received replies from thirty-six directors; in class 2 (county boroughs) from forty; and in class 3 (boroughs and urban districts) from forty-five. The authorities concerned are fairly representative of all portions of England and Wales, and both of rural and urban districts.

I may sum up as follows the impression left on my mind by the study of all the replies :

1. The Act appears to give greater satisfaction in the counties than in the county boroughs and boroughs and urban districts, although even in the counties the position of the smaller rural schools is a cause of dissatisfaction.
2. That in the boroughs there is, on the whole, a preponderance of opinion in favour either of an authority elected *ad hoc*, or a more liberal exercise of the power of co-option.
3. That there is a preponderance of opinion that the appointments of the school teachers should in all cases rest in the hands of the L.E.A.
4. That there is a tendency under the present system, except in centres of large population, to restrict the choice of teachers to those who have received their education locally, and that the effect of such restriction is detrimental.
5. That greater freedom in educational matters is advisable. The effect of the present system is to produce a dull uniformity, although it is doubtful whether the head-teachers themselves or the Board of Education are most to blame.
6. That an increase in the number of vocational schools is not desirable, unless great care is taken that only those scholars are admitted who have received a sound general education.
7. That one of the greatest hindrances to progress is the large size of the classes.
8. That there should be greater delegation of powers to the education committees, and that the L.E.A. should have complete control over all forms of education within its own area.
9. That a Redistribution Bill in the matter of areas is desirable, especially in the relation of urban areas to the rural districts connected with them.
10. That the dearth of fully qualified teachers cannot be remedied until the profession is made sufficiently attractive by increased emoluments and more rapid

<sup>2</sup> It appears that our average expenditure per child per working week (including interest on buildings, &c.) is about 1s. 8d. Perhaps we are getting in return as much as we deserve at the price.



promotion. Mere increase in the number of training colleges is no remedy.

11. And, lastly, there is a consensus of opinion that a greater proportion of the cost of education should be borne by the Treasury, and that the danger to education arising from the rapid rate of increase in the education rate is a very real one. If education in this country is to be successful it must be made popular. This is impossible when every step in advance means an addition to the local burdens.

I am afraid that the tenor of this correspondence does little to modify the pessimistic views to which I have previously directed attention. Regarded in bulk it conveys the idea that the writers are endeavouring to make the best of a bad case.

I am now going to take a bold step—namely, to express my own opinion on this matter of primary education. I consider that we are proceeding in the wrong order, in that we give greater prominence to the acquisition of knowledge than to the development of character.

There is truth in Emerson's dictum that "the best education is that which remains when everything learnt at school is forgotten." We appear to think that the learning of "the three R's" is education. We must remember that in imparting these we are only supplying the child with the *means* of education, and that even when he has acquired them the mere addition of further knowledge is again not education. If we impart the *desire* for knowledge and train the necessary mental appetite, the knowledge which will come by the bucketful in after life will be absorbed and utilised.

It is, I know, easy to talk platitudes of this kind. We have, in justice to the teacher, to remember that character depends on home life, as well as on school life; but, nevertheless, if we could educate public opinion on this matter progress might be possible. We want to introduce the spirit of our much-abused public schools into all schools, namely, a sense of responsibility—and, as a necessary sequence, a sense of discipline—a standard of truthfulness and consideration. In this connection I have been greatly impressed by a report issued by the Warwickshire County Council on the effect of the establishment of the prefect system in the elementary schools of that county, and I wish it was possible to place this report in the hands of every teacher in the country. It is stated in the introduction that "the fundamental idea of the prefect system is the formation and development of character and the utilising for this purpose of the efforts and activities of our pupils themselves."

The pamphlet contains a description of the system as established, and the different methods adopted in the schools of the county in carrying it into effect.

A summary of the head-teachers' remarks, compiled by the director of education, is given as an appendix, and I cannot resist the temptation to quote largely from his report:—

"In the autumn of 1911 a conference of head-teachers was held on prefect systems in elementary schools. It was then decided that all the head-teachers present should try the system for a year, each one on

his or her own lines, and then report as to its working.

"Nearly all have now made reports, one only having failed without good cause. Reports have come in from six large or middling boys' schools, three large girls' schools, two large mixed schools, eleven middling and small schools, mostly in villages, and one infants' school—twenty-three in all, embracing schools of practically every type.

"The record, with one exception, is a story of success, in most cases of extraordinary success, so much so as to put the possibility and value of the system beyond a doubt. Whether in developing the prefect's own character, or in creating a sense of school honour among the other children, or in smoothing the whole working of the school, the result is equally striking. And the more ambitious the scheme of a school, the more it approximates to the public-school tradition, the bigger the faith in boy and girl nature, the greater has been the success. The few evidences of comparative disappointment come from schools where the system has been tried haltingly and with distrust. Where there has been courageous faith in the children they have risen to it to a degree that must surprise even those who were readiest to believe in school self-government. Nor is the success confined to large schools or boys' schools. Boys' and girls' and mixed schools, town schools and village schools, all have the same tale to tell. A supply teacher who has served in seven schools since the conference has found that 'from all classes of children, town and country, a ready response is made to an appeal for added responsibility and trust on their part.' . . .

"The prefect, being in authority himself, comes to see the necessity and value of discipline. He is as keen as is his head for the school's honour; he worries the unpunctual, he takes charge of the playground. He is proud at being asked and able to help in matters of school routine, most of all when the teacher is called out of the class-room and he is himself responsible for order. And woe then to the disorderly or slack! . . .

"In its way one of the most remarkable applications of the system is its appearance in a miniature form in an infants' school. Children of six and seven, happy in the possession of the monitor's bow of ribbon, take care of the younger children and remove dust which has escaped the caretaker's eye. . . .

"It is a moot point whether a written constitution helps or not. Some teachers deprecate rules, as limiting a prefect's sense of responsibility and his freedom to follow out his own ideas. That rules, however, meet some want seems to be proved by the fact that at a school where the headmaster had purposely made none, the boys themselves drew up their code, and, the headmaster adds: 'I could not have got out any better rules.'"

The origin of the movement the results of which are thus described is due to the man whom I regard as the greatest educator of our time—namely, Sir Robert Baden-Powell. I believe that the Boy Scout movement is rendering greater service than our complicated State machinery in preparing those who are

brought within its influence for the struggles of life. It is a matter for regret that so small a fraction of the children in our schools is able to share its benefits. I only wish it were possible for our political system to admit the appointment of Baden-Powell as Minister of Education, with plenary powers, for the next ten years!

He states that when visiting a great agricultural school in Australia he asked the principal to inform him briefly what was the general trend of his training. The reply was: "Character first; then agriculture."

If this, suitably modified, could be adopted as the motto for all our schools the present attitude of the man in the street towards education would soon undergo modification.

There is truth in Dr. Moxon's statement that "A man has to be better than his knowledge, or he cannot make use of it," and our efforts should be mainly directed to making the character and the intelligence of the child so much better than his knowledge that increase in knowledge will follow as a matter of course. Let us devise some kind of universal Junior Scout system which may so brighten the intelligence that the boy will *want to know*. Let him also discover that the paths to knowledge are reading, writing, and arithmetic; he will then gladly follow his guides and gather more by the way than when he is pushed along those paths in a perambulator.

So long as we attach greater importance to the results of examination than to the judgment of the teacher our system stands self-condemned, for it places knowledge above character.

It is natural that the discontented amongst us should try to cast the blame on those in authority, and I confess that at times I feel as if I could join the militant section and relieve my feelings by throwing stones through the windows of the Board of Education; but in recent years I have been privileged to pass to the other side of those windows, and I have, to some extent, been led to realise how able and how devoted are the men to whom the guidance of our educational system is entrusted. All who are brought in contact with them must acknowledge their earnestness and their zeal in the cause in which they are enlisted, and it is remarkable how, in the discussion of educational questions, they can, in moments of partial *abandon*, cease to be strictly official and become almost human. It is evident, however, that the aim of such men must ever be the smooth working of the machine as a whole. The comforting words, "co-ordination," "uniformity," "efficiency," are ever in their minds. A system planned on one great design and perfected in all its details is the ideal for which they are bound, consciously or unconsciously, to strive. The pity of it is that the more successful their efforts, the worse it is for education in this country.

Evolutionary progress is only possible where variety exists, and variety is necessarily abhorrent to the official mind. Freedom for local authorities to adopt their own methods, to experiment—and often to fail—is the system, if system it can be called, by which alone advance is possible. The curse of uniformity, perhaps the greatest curse of all, is a necessary consequence of over-centralised control.

I have trespassed so greatly upon your forbearance in discussing matters connected with primary education that I must give but brief expression to any views concerning the secondary and higher branches.

As I have previously indicated, State aid should be restricted to those who are able to profit thereby. The 25 per cent. free-place regulation has, it is generally admitted, brought into the secondary schools many really able students. On the other hand, there is no doubt that a certain proportion thereof would be more profitably employed in serving their apprenticeship in the business in which they are to earn their bread-and-butter. It is, of course, understood that those whose parents can afford to pay for the further education of their children and who are ready to do so are not here referred to, but, careful selection assured, generous assistance to those in need of help suggests itself as the best policy.

Another subject for consideration is the disproportion between the assistance given by the State to the training of primary and of secondary teachers. I understand that to the latter object, so far as England and Wales are concerned, the not impressive sum of £5,000 is delegated. After making due allowance for the difference in numbers under the respective headings, it is difficult to understand how it is necessary to expend a sum approaching £700,000<sup>3</sup> on the training of primary teachers, and only 1/140th of that amount on training those who are to guide our most able students in the pursuit of knowledge.

Had time permitted I should have liked to dwell on the evil effects of what I may term our conspiracy of silence regarding sexual instruction. If the proverbial visitor from Mars was engaged in a tour of inspection in our country, I think nothing would strike him as more extraordinary than that a subject which so closely concerns the progress of the race and the welfare of the individual should be entirely ignored in our system of education. By our action (or rather want of action) we tacitly admit that knowledge is harmful, and that we deliberately prefer such knowledge, which must necessarily be attained in one way or another, to arrive by subterranean channels and by agencies which will present facts of vital importance in their worst possible aspect.

We cannot be said to be really educating our children so long as we withhold from them all guidance in one of the most difficult problems which will be presented to them in later life, and when one reflects on the misery and wreckage consequent on our silence, it is difficult to speak with due moderation. I will therefore content myself with suggesting to those interested in this matter a study of the pro-

<sup>3</sup> Note I.—Grants for 1911-12:

1. Grants from Board of Education:—		
(a) Maintenance grants to Training Colleges and Hostels		£470,910
(b) Building grants		93,496
		£564,406
2. Grants from L. E. A.'s:—		
(a) To Training Colleges		21,682
(b) To Hostels		? 787
(c) Scholarships (not possible to ascertain total)		
		22,469
Total		£586,875

Note II.—To the above must be added the grants in aid of bursars and pupil teachers, which amount to £101,802.

cedure adopted in the schools of Finland, in which systematic instruction is given by carefully selected teachers; it is stated with the happiest results.

I have referred, when speaking of primary education, to the curse of uniformity as one of the greatest evils of our educational system. So far, at all events, our provincial universities have escaped, although not entirely unscathed, from the cramping effects of departmental control. The situation, however, is not free from danger. It is necessary that these universities should be State-aided. It is also evident that, if we are to hold our own in competition with other nations, State assistance must be increased. There is danger, therefore, that the blight of uniformity and official control may descend upon them. The danger is not immediate, but it is nevertheless real. To some of us an ominous sign was the transference of the dispensation of the university grants from the Treasury to the Board of Education. It is true that we have evidence that no desire for undue control is manifest at the present time, and it is an encouraging sign that the Minister of Education, in a recent dispute connected with one of our youngest universities, intimated that he considered it beyond his province to interfere with its proceedings.

Another encouraging sign is the *personnel* of the Advisory Committee which the Board has established to guide it in matters connected with the university grants. We cannot, however, be certain that such wise views will always prevail, and I have already dwelt on the inevitable tendency of any department of State to influence and control the policy of all bodies receiving assistance from the Treasury.

The freedom of the universities is one of the highest educational assets of this country, and it is to the advantage of the community as a whole that each university should be left unfettered to develop its energies, promote research, and advance learning in the manner best suited to its environment. It is conceivable that it might be better for our universities to struggle on in comparative poverty rather than yield to the temptation of affluence coupled with State control.

The State is at present devoting some £180,000 to the support of university education in England and Wales. If, in addition, we include such institutions as the National Physical Laboratory and the grant of £4,000 to the Royal Society, we may say that this country is expending about £200,000 per annum on the highest education and the promotion of research, a total but slightly exceeding that devoted to *one* of the universities of Germany. Comment appears needless.

When we reflect on the magnitude of the results which would inevitably follow an adequate encouragement of research, the irony of the position becomes more evident. It was stated on authority that Pasteur during his lifetime saved for his country the whole cost of the Franco-Prussian War. It is computed that nearly one and three-quarter millions of our population are to-day dependent for their living upon industries connected with the mechanical generation of electricity—a population which may be said, without undue use of imagery, to be living on the brain of

Faraday. We possess mathematicians who, granted encouragement, opportunity, and time, could establish the laws of stability of aeroplanes. Suppose we spent some millions in discovering *the* man and enabling him to complete his task; the result might be an addition to our security greater than that of a fleet of super-Dreadnoughts. Unfortunately, there are no votes to be gained by the advocacy of opportunities for research!

Associations such as ours should spare no effort to bring home to the minds of the people the truth of the statement that the prosperity of this kingdom is dependent on its industries, and that those industries are founded on applied science.

Some years ago the *Petit Journal* invited its readers to answer the question: "Who were the twenty greatest Frenchmen of the Nineteenth Century?" No fewer than fifteen million votes were recorded. The resulting list included the names of nine scientific men, and Pasteur led by 100,000 votes over Victor Hugo, who came second, Napoleon securing the fourth place. It is obvious that a poll of such magnitude must have been representative of all classes. I ask you to reflect on the probable result, *mutatis mutandis*, if such a poll was taken in this country. I am afraid we should find the names of football and cricket heroes included, but I doubt if the name of a single man of science would appear amongst the immortals.

It should be our mission to make evident to the working-man his indebtedness to the pioneers of science. Demonstrate to him the close connection between the price of his meat and the use of refrigerating processes founded on the investigations of Joule and Thomson; between the purity of his beer and the labours of Pasteur. Show the collier that his safety is to no small extent due to Humphry Davy; the driver of the electric tramcar that his wages were coined by Faraday. Make the worker in steel realise his obligation to Bessemer and Nasmyth; the telegraphist his indebtedness to Volta and Wheatstone, and the man at the wireless station that his employment is due to Hertz. Tell the soldier that the successful extraction of the bullet he received during the South African war was accomplished by the aid of Röntgen. Convince the sailor that his good "land-fall" was achieved by the help of mathematicians and astronomers; that Tyndall had much to do with the brilliancy of the lights which warn him of danger, and that to Kelvin he owes the perfection of his compass and sounding line. Impress upon all wage-earners the probability that had it not been for the researches of Lister they, or some member of their family, would not be living to enjoy the fruits of their labours. If we can but bring some 5 per cent. of our voters to believe that their security, their comfort, their health, are the fruits of scientific investigation, then—but not until then—shall we see the attitude of those in authority towards this great question of the encouragement of research change from indifference to enthusiasm and from opposition to support.

When we have educated the man in the street it is possible that we may succeed in the hardest task of all, that of educating our legislators.

## THE ARTIFICIAL LIGHTING OF SCHOOLS.<sup>1</sup>

**INTENSITY OF ILLUMINATION REQUIRED.**—The intensity of illumination necessary in schoolrooms depends on the nature of the work carried out. In many details further experience is necessary before precise limits can be assigned to these quantities in specific cases.

A distinction might be drawn between the needs of children and the requirements of adults. But inasmuch as the results of working by defective illumination seem likely to be proportionately more serious in the case of children, the committee has considered mainly their needs in making these suggestions. A broad distinction should also be drawn between ordinary clerical work (reading and writing, &c.) and special work (art and metal work, embroidery, &c.). A number of experiments on this point were conducted by the committee, the illumination being adjusted until it appeared sufficient for various classes of work, and photometric measurements then made.

As a result it is suggested that (a) for ordinary clerical work (reading and writing, &c.), the minimum illumination measured at any desk where the light is required should not fall below 2 foot-candles.<sup>2</sup> (b) For special work (art classes, drawing offices, workshops, and stitching with dark materials, &c.), a minimum of 4 foot-candles is desirable. (c) For assembly-rooms, &c., and for general illumination, a minimum of 1 foot-candle measured on a horizontal plane 3 ft. 3 in. from the ground. The question of the permissible diversity factor remains to be considered.

It was also recommended, in view of the general recognition of the prejudicial effect on the eyes of children of fine needlework carried on by artificial light, that only coarse work on white material should be executed by artificial light in elementary schools; the minimum in this case being the same as for (a) above.

**DIRECT, INDIRECT, AND SEMI-INDIRECT LIGHTING.**—The committee then proceeded to consider various methods of lighting schoolrooms. A series of questions relating to the respective merits of direct, indirect, and semi-indirect lighting were drawn up and submitted to Mr. J. G. Clark, Mr. V. H. Mackinney, Mr. T. E. Ritchie, and Mr. F. W. Willcox. The thanks of the committee are due to these gentlemen for the trouble they have taken in preparing answers to these questions and attending before the committee to state their views.

After hearing this evidence the committee took note of the respective advantages of these methods for certain classes of work, but decided that the above standards of illumination should be provisionally adopted irrespective of the method of lighting.

**BLACKBOARD LIGHTING.**—The question of blackboard

lighting was next considered. Whereas the minimum illumination suggested for reading purposes (namely 2 foot-candles) might be enough in the case of a small class-room, where white chalk is mainly used, and no students are further than 20 ft. from the blackboard, a higher value would in general be necessary in the case of larger rooms, and on boards where it is customary to use diagrams in coloured chalk. By the kind permission of Dr. R. S. Clay, a number of experiments on this point were carried out at the Northern Polytechnic, the blackboard being illuminated with varying intensities, and the visibility of figures written in white and coloured chalks examined from various parts of the room. As a result the committee recommends that an illumination on the blackboard about 60 per cent. in excess of that prevailing in the rest of the room is desirable.

As a rule it would be necessary for the illumination on the blackboard to be carried out by special local lighting from lamps equipped with opaque screens, completely concealing them from the eyes of students. The nature of the surface of the blackboard is also of importance. This should be maintained a dead black sensibly free from regular reflection, so that the maximum contrast between the white chalk and the blackboard may be available, and that there may be no glare due to reflection from polished surfaces. The blackboard should be repainted at regular intervals.

**AVOIDANCE OF GLARE.**—A point of special importance in connection with schoolroom lighting is the avoidance of glare from the sources of light, and the committee desires to emphasise the value of proper methods of shading. It is a common defect in schoolrooms for the bare mantles or filaments to be within the range of vision of students when looking towards the blackboard. The committee recommends that no lamps should come within the solid angle subtended at the eye by the blackboard and a space 2 ft. above it, unless they are completely screened from the eye by a shade impervious to light. In general it is desirable that no incandescent surface should be visible to the eyes of students or teachers, while carrying on their ordinary work.

Another source of glare is the direct reflection of light from the polished surfaces of the desks or paper. It would be desirable for text-books intended for the use of young children to be printed on matt paper that is sensibly free from prejudicial reflection of this kind.

As a further means of avoiding this defect the committee advocates the use of shades in which the brightness of the source is spread out over a considerable area, and the judicious use of reflection from the walls and ceilings of the room. These should be of such a texture that any considerable regular reflection is avoided, glazed and shining surfaces above the dado being specially objectionable.

**AVOIDANCE OF INCONVENIENT SHADOWS.**—In the class-room the lights should be so arranged that inconvenient shadows cast by the body on the desk should be so far as possible avoided. The precautions suggested under the previous heading, and particularly the use of light-tinted surroundings, which serve to diffuse the light, may be recommended with the view

<sup>1</sup> Preliminary Report of the Joint Committee appointed in 1911; issued by the Illuminating Engineering Society with the approval of the delegates of the associations represented on this committee.

<sup>2</sup> Four members of the committee, Mr. Goodenough, Mr. Stokes, Mr. Darch, and Mr. Mortimer, were strongly of opinion that the minimum illumination should not be less than 2½ foot-candles.

of softening the shadow. The ceilings should be preferably of a warm white colour, and the walls and all woodwork above the dado should be light in tint.

CONCLUSION.—The committee offers the above tentative suggestions as a preliminary to more detailed recommendations.

Through the courtesy of Mr. Blair and the Education Department of the London County Council, several schoolrooms lighted respectively by gas and electricity have been placed at the disposal of the committee. A number of experiments have already been conducted with the view of demonstrating to the satisfaction of the committee that the present recommendations are practicable, and this report was finally reconsidered after the committee had paid a visit of inspection to the rooms in question

## HISTORY AND CURRENT EVENTS.

How slowly, without observation, and often unconsciously, the constitution has grown in England, in Great Britain, and in Great-Britain-and-Ireland! The development of the constitution of the British Empire has also proceeded largely in the same manner. It is true that in matters of imperial defence. in these democratic days, there has been more talk and publicity than in former times, but in legal matters, where not so much expense is involved and public interests are not so obviously at stake, changes come about gradually, the result of deliberation by small bodies of men which is followed at leisurely intervals by action on the part of responsible officials. When the United States of America was formed in the years 1783-9, the people of that country made a common executive, a common legislature, and a common court of justice as the three necessities to union. So now we are evolving a common Imperial Court of Appeal by adding to the courts of the British Isles members from the Dominions beyond the Seas. Sir Samuel Griffith, of Australia, is the first addition so made.

THE Palace of Peace at The Hague has been inaugurated, and the advocates for the abolition of international war have met there to discuss what are intended to be practical ways of achieving that much-to-be-desired consummation. But the nearer they apparently approach their goal, the more glaring are the defects of their proposed remedies. They would fain create a new State, a federation of the world, to which the existing States would submit as quietly as individuals do to the decision of judges. But they are compelled to confess that, like all other States, this new creation of theirs would require force to carry out its decrees, and they confess that they do not know where this force is to be found. And the outsider, hearing these confessions, mentally adds: "And if this force were found, would not the use thereof be the very 'war' which they deprecate so much?" Europe has tried various ways of keeping the peace, Popes, councils, ecclesiastical and lay, concerts, &c., but nothing has been found as a preventive of war but the absence of a desire to fight, and that must be reached through the hearts of men.

THE death of M. Emile Ollivier was not necessary to remind the world of his existence and of the part he played in the European events of forty years ago. His last years were devoted to writing a detailed account of his share in the catastrophe which led to the downfall of Napoleon III. M. Ollivier's account of the matter is, of course, not the last word in the controversy as to the responsibility for the Franco-German war of 1870-1, and on the reasons for the unexpected and complete breakdown of the Imperial policy, but it is a useful contribution to the judgment which history will finally pass on the events of the decade between 1860 and 1870. Even now we are in a better position than the contemporaries of those events to apportion the share taken by Bismarck, Cavour, Garibaldi, and others in the great European revolution which made Italy a united kingdom, and Germany a united empire, and M. Ollivier has explained what he means when he told Napoleon that he went to war "with a light heart."

WE all know now that King John did not sign Magna Charta, but instead caused his seal to be attached to it, and ever since his time the affixing of the great seal has been the necessary formality for the execution of certain Government functions. It is therefore necessary that this seal and its guardian, the Lord Chancellor, should always remain in the country, and it is said that Cardinal Wolsey was until this year the only Lord Chancellor who has gone abroad during his tenure of the office. It will also be remembered, and it serves as an illustration of the importance of the instrument, that when James II of England fled the country on the approach to Westminster of William of Orange, he thought to disarrange public affairs for his rival by dropping the great seal into the Thames. That act did not hinder the change of dynasty which we call "the Revolution," any more than the other legal formalities ignored in the winter of 1688-9, and now that Lord Haldane has paid a semi-public visit to the United States of America the seal was put, during his absence, "into commission," i.e., into the custody of three statesmen who used it whenever required until Lord Haldane returned.

## ITEMS OF INTEREST.

### GENERAL.

IN accordance with a resolution passed at the Imperial Education Conference in 1911, the Board of Education's Office of Special Inquiries and Reports has recently been engaged in an attempt to draw up in a concise form a statement as to the conditions governing the recognition, classification, and payment of teachers throughout the self-governing Dominions. The statement is based partly upon the answers to a questionnaire sent to the Education Department of each State, and partly upon other available material. It was hoped to issue statements for the whole of the self-governing Dominions, either in a single volume, or in three groups comprising respectively Canada and Newfoundland, Australia and New Zealand, and the Union of South Africa; but the plan of publishing

parts in pamphlet form has been resorted to, it being inconvenient to delay the issue of the parts that are ready because certain others are in a less advanced stage of preparation. The parts already issued are those relating to Ontario, Quebec, Nova Scotia, New Brunswick, Manitoba, British Columbia, and Victoria. The pamphlets are of considerable interest both to primary- and to secondary-school teachers, and the concise and systematic statements they contain will, notwithstanding the difficulty of keeping up to date for long in such matters, throw light upon the problem of interchange of teachers within the limits of the Empire.

THE heads of schools and teachers of modern languages will welcome the examinations recently instituted by the University of Oxford for certificates of proficiency in French and German. From a pamphlet which has just been issued we learn that the examinations are specially designed for teachers and intending teachers of French and German who do not already possess authoritative documentary evidence of their proficiency in these languages. The examinations will be open both to men and women of whatever nationality, and it is not a necessary qualification for admission to them that men candidates must be members of the University or that women candidates must be registered women students at Oxford. The University will provide complete courses of instruction in preparation for the examinations, but candidates are not necessarily required to have resided at Oxford or to have attended the courses in order to qualify for admission to the examinations. Copies of the pamphlet containing a detailed account of the courses of instruction, dates of the examinations, &c., may be obtained from the Assistant Registrar, University Registry, Oxford.

THE London Centre of the Teachers' Guild of Great Britain and Ireland will hold the opening meeting of this session at 8 o'clock on Monday, October 27. The occasion is one of unusual interest, as the London Centre will welcome its first president, Canon J. H. B. Masterman, whose presidential address will take the form of a lecture on "Westminster Abbey," illustrated by lantern slides. Through the kindness of the principal, the meeting will be held in the new buildings of Bedford College, Regent's Park (near York Gate).

THE London County Council, in continuation of its practice of former years, has arranged a comprehensive series of classes and lectures for teachers for the session which has just commenced. Full particulars are announced in the official handbook of classes for teachers, which can be obtained from the Education Offices, Victoria Embankment. The lectures are free, upon payment of a nominal registration fee, to all teachers actually engaged in teaching in the County of London, irrespective of the institutions in which they are employed. Many of the courses are purely pedagogic in character, and are calculated to appeal to the professional instincts of the teacher. On the other hand, there are numerous courses which have less immediate bearing upon the training of a teacher in the narrower sense, but are designed more expressly to afford an opportunity for a teacher to

broaden his outlook on men and affairs by coming into contact with persons of learning and distinction in various subjects of a general as well as professional interest. The success of the special courses at the Zoological Gardens has led the council to organise a similar course on Kew Gardens. The course will include visits to the Royal Botanic Gardens, Kew; the syllabus has been prepared by Mr. Arthur W. Hill, the assistant-director of the gardens, who will lecture on the exhibits and organisation of the gardens. The lectures given last year by Dr. Christine Murrell on the physiology of adolescent girls will be repeated this year. Lectures are to be given on the care of the eyes, personal hygiene, and on other subjects connected with the physical well-being of children.

THE ninth annual report of the Education Committee of the County Council of the West Riding of Yorkshire contains much interesting information as to the progress of secondary education in the district. During the year ended on March 31st last the new buildings of two secondary schools were opened, viz., Normanton (Girls) and Todmorden (Dual). These bring the total number of new schools opened by the council up to nineteen. The new buildings at Settle (Girls) are approaching completion, and tenders for the equipment have been let. Extensions of schools are in progress at Batley (Boys) and Keighley (Boys). Plans for extensions have been approved for the Mexborough Secondary School, where, owing to the increased numbers, it is necessary to enlarge the dining-room and kitchen. A new swimming bath at Ilkley Grammar School (Boys) is rapidly approaching completion. The number of teachers employed in secondary schools maintained and aided by the council during the year was: headmasters, 36; headmistresses, 14; assistant-masters, 175; assistant-mistresses, 199; visiting masters, 98; and visiting mistresses, 64. The number of public secondary schools in the West Riding is:—Boys, 16; girls, 14; dual, 20; total, 50. Of the fifty public secondary schools twenty-seven are endowed schools, six of which, during the year, were in receipt of special grants (recoverable on the area deemed to be served in each case) to meet their deficits on maintenance account; of the remaining twenty-three schools, which have no endowment, seventeen were in receipt of similar special grants. After April 1st, 1913, four schools—two for boys and two for girls—ceased to be in the West Riding administrative area, owing to Barnsley and Dewsbury becoming county boroughs.

THE results of the Royal Society of Arts annual examinations, held in April last, have now all been issued. The total number of candidates examined was 27,294 (advanced, 4,618; intermediate, 11,580; elementary, 11,096). In addition, there were fifty-four short-hand candidates at the special Army examination, 688 candidates in colloquial modern languages, and 273 in the practice of music. The number of papers worked by the candidates was: advanced, 5,293; intermediate, including theory of music, 13,302; elementary, 14,611, or 33,206 papers in all. In London the London County Council have charge of the examinations, and this year 7,140 candidates were examined

at centres under this control. The number of provincial centres was 380.

THE total number of candidates entered for the Cambridge Local Examinations held in July was 8,359, exclusive of 464 who were examined at Colonial centres. In the Senior examination 1,166 boys and 1,568 girls passed, first-class honours being gained by 113 boys and 33 girls; the standard of merit necessary for exemption from one or both parts of the Previous examination was reached by 702 boys and 531 girls. Of the Junior candidates, 1,685 boys and 995 girls satisfied the examiners, 147 boys and 15 girls being placed in the first class. In the Preliminary examination 397 boys and 662 girls passed.

In the Oxford and Cambridge Schools Examination last summer the number of candidates who presented themselves for higher certificates was 2,088, as against 2,062 last year. The number of higher certificates awarded was 1,134, compared with 1,015 last year. For lower certificates, 1,108 candidates entered; the number of lower certificates awarded was 603. In higher certificates, Rugby gains 60 successes, Oundle 48, Rossall 39, Bradford Grammar School 36, Uppingham 35, Marlborough 36, Charterhouse 34, Bristol Grammar School 25, Cheltenham 23, Clifton 21, Downside 19, and Felsted 18.

AN important statement of the educational policy of the Government of India has recently been issued. The central Government has decided to encourage comprehensive schemes of education in the separate provinces by means of large grants-in-aid. These grants, which will be issued so soon as funds become available, are intended to increase the scope of educational administration by providing means for the development of greater variety in schools and colleges. Among other reforms, local governments are recommended to appoint a special commission to inquire into school and college hygiene, with reference to buildings, infectious diseases, working for examinations, recreation grounds, and the introduction of a simple and practical course of hygiene into the curriculum. More than six million pupils are under instruction in India; there has been an increase of 20 per cent. in the last four years. There are about 100,000 primary schools, with 4½ millions of pupils, and the Government hopes that these numbers will be almost doubled at an early date. The education of girls remains to be organised, and the reform of secondary English schools is regarded as the most urgent of educational problems.

THE following extracts from the report are of particular interest:—"For financial and administrative reasons of decisive weight the Government of India have refused to recognise the principle of compulsory education; but they desire the widest possible extension of primary education on a voluntary basis. As regards free elementary education, the time has not yet arrived when it is practicable to dispense wholly with fees without injustice to the many villages which are waiting for the provision of schools. The fees derived from those who can afford to pay them are now devoted to the maintenance and expansion of primary education, and a total remission of fees would

involve to a certain extent a more prolonged postponement of the provision of schools in villages without them. . . . Trained teachers should receive not less than 12 rupees per month (special rates being given in certain areas); they should be placed in a graded service; and they should either be eligible for a pension or admitted to a provident fund. . . . No teacher should be called upon to instruct more than fifty pupils; preferably the number should be thirty or forty; and it is desirable to have a separate teacher for each class or standard." The Government, besides advising many principles similar to the foregoing, reasserts adherence to the policy of the admixture of private management and State control in regard to secondary English education.

#### SCOTTISH.

THE recent transference of the agricultural colleges and the oversight of agricultural education generally from the Education Department to the newly constituted Board of Agriculture for Scotland has not resulted, as many anticipated, in breaking off all co-operation between the two authorities. A scheme of instruction in rural continuation classes has just been prepared by a joint committee of representatives of the Board of Agriculture for Scotland, the agricultural colleges, and the Scotch Education Department. This combination of educational knowledge and practical experience has resulted, as might be expected, in the production of an admirable series of courses to suit the requirements of the youth in rural districts. The guiding principle that has been kept in view in forming these courses has been that they should, on one hand, continue on broad lines the instruction given in the supplementary classes of rural schools, and should, on the other, lead up to the more specialised courses which are being given by the county staffs of agricultural colleges as part of their extension work. In this way it is hoped that there will be evolved a well articulated and fairly complete curriculum which will be adequate to the needs of the rural population, which, while essentially educational, will be related more or less closely to rural occupations. Sir John Struthers, in a covering letter, states that friendly co-operation on the part of all the authorities, officials, and teachers concerned is an essential element in the satisfactory working of the complete scheme. The genesis of the scheme should be an augury of the happiest kind for the success of the whole movement.

THE Educational Institute of Scotland, through its Committee on Higher Education, has issued a memorandum on the subject of supplementary courses. The function of the supplementary course as a training ground for those whose goal is the workshop, the desk, or the home, is frankly recognised, and all desire for identity or competition with the intermediate and secondary school is expressly disclaimed. At the same time, it is pointed out that there is a loss of prestige and social standing at present attached to those who take these courses, and a number of reforms are suggested in order to give to these courses an

honourable place in the educational system. The merit certificate which at present marks the successful completion of these courses was severely criticised. It indicated no definite standard of attainment, and conferred no specific educational or other advantages. It had, in short, no face value. The following recommendations have been forwarded to the Department for their consideration: (i) The size of classes and the amount of grant earnable should be the same for supplementary courses as for intermediate courses; (ii) a three years' course should be instituted carrying with it a new certificate, to be called the "Supplementary Certificate"; (iii) this certificate should carry with it admission to the third year of continuation classes and to the first year in technical colleges; (iv) in isolated rural districts the supplementary courses should be allowed to merge into the intermediate courses.

THE calendar of the Edinburgh and East of Scotland College of Agriculture has just been issued, and contains full details of the various courses of instruction which are now available in the departments of agriculture, horticulture, and forestry. Special note may be made of the new course in horticultural science. In these days, when so much interest is taken in gardening by all classes, this course ought to appeal to all who have a working knowledge of the subject, but who desire to make themselves acquainted with its scientific aspects in order that they may be qualified for the higher posts now open to those who have this double qualification. Details are also given of the college extension work, which now forms one of its most useful features, as it appeals to a much larger constituency than the regular college work. Besides general agricultural subjects, such special matters as dairying, veterinary science, poultry-keeping and bee-keeping are dealt with in courses to suit the requirements of particular districts.

THE St. Andrews Provincial Committee for the Training of Teachers has decided to try an interesting experiment in connection with the practical training of their students at St. Andrews and Dundee. One of the assistant methods teachers has been appointed to a research scholarship in Columbia University, and has been granted a year's leave of absence to take up her work. The Provincial Committee asked the authorities of Teachers' College, Columbia University, to nominate one of their graduates with teaching experience to take up the post of methods mistress in St. Andrews. Their choice has fallen upon Miss Luella Seager, B.A., B.Sc., who has had extensive experience in all grades of schools. Miss Seager is assured of a hearty welcome, both from students and staff.

MR. WILLIAM ROBBIE, an Aberdonian, who emigrated to Australia sixty years ago, has just died at Ballarat, Victoria, and has left in his will a sum of £30,000 to maintain perpetual scholarships at Aberdeen University.

THE Scotch Education Department has issued revised regulations with regard to the keeping of school registers. In an accompanying circular the

Department expresses regret that instances of irregularity in the marking of registers and in the summation of attendances have from time to time been brought under its notice. The responsibility for accurate registration rests in the first place upon the teachers, but school managers are reminded of their own responsibility in the matter, and are informed that a deduction from the grant may be made without warning for faults of registration.

### IRISH.

THE summary of the results of the Intermediate Examinations held last June is as follows:—

	BOYS.			Total.
	Senior Grade.	Middle Grade.	Junior Grade.	
Number examined ...	763	1,631	3,760	6,154
Number who passed:				
With Honours ...	163	306	556	1,025
Without Honours...	299	530	1,440	2,269
Total ...	462	836	1,996	3,294
Percentage of passes	60.5	51.2	53.1	53.5
	GIRLS.			Total.
	Senior Grade.	Middle Grade.	Junior Grade.	
Number examined ...	409	861	2,282	3,552
Number who passed:				
With Honours ...	85	214	266	565
Without Honours...	197	342	991	1,530
Total ...	282	556	1,257	2,095
Percentage of passes	68.9	64.6	55.1	59.0

THE percentages in 1912 were: For boys, senior grade, 67.7; middle, 58.6; junior, 61.6; total 61.7; and for girls, senior grade, 68.0; middle, 65.7; junior, 48.9; total 55.4. It is clear that the boys' results are considerably worse than last year, which seems to show that the standard was this year higher, and to lend some force to the criticism passed on the mathematical papers. This is confirmed by a comparison with the girls' results, which are better than the boys', girls being able to pass with only one mathematical subject, while two are essential for boys. Two suggestions may be offered. The first is that the percentages of passing all round are too low, and that the standard of the pass papers should be made easier, and the second is that it would be reasonable to restore what was known as the principle of averages, whereby if a candidate failed to secure a pass by a failure in one subject only he should be allowed a pass if he passed sufficiently well in all the other subjects. These two proposals, if adopted, would give much encouragement to the average candidate, who, after all, is the most important person in education and in the schools. In the present year, if we allow 30 per cent of candidates to be of more than average ability and 30 per cent. of less than average ability, leaving 40 per cent. of ordinary average ability, we can see that the average boy's chance of passing is only 47 out of 80, and the average girl's 29 out of 40. It should be much higher if the Commissioners observed their own principle that "The pass examination papers will be such as may be answered by a student of average capacity, fairly well taught."



THE Intermediate rules and schedule containing the programme of examinations for 1914 appeared too late for comment last month. In the main they follow the same lines as those of last year, but there are a few important changes calling for note. The first is the introduction of a new subject for pass and honours, called a commercial course. The impression made upon one's mind by this course is that it is purely experimental, and that its relation to other subjects has not been clearly thought out. In the junior grade the commercial course for a pass consists of four subjects: (a) commercial geography; (b) book-keeping; (c) précis, copying for MSS., and elementary business methods; (d) shorthand, and to pass a student must obtain 30 per cent. in each of three of these courses. For honours subject (a) consists of outlines of industrial history and commercial geography, (b) and (c) remain the same, and (d) shorthand disappears. A student has no chance of taking shorthand for honours. Why? The middle grade pass consists of the same subjects as the honours course in the junior grade, with the addition of shorthand; except that précis and copying from MSS. are omitted. The same subjects are allowed for honours again with shorthand excepted. Why is copying from MSS. dropped? It is an essential Civil Service subject for the second division for boys between seventeen and twenty, but the Intermediate boy is to drop it at sixteen. The senior grade course is the same, with the addition of (e) elements of political economy, but 30 per cent. is required in only three of the subjects.

We read that a student who takes book-keeping or shorthand for the purpose of a pass in the commercial course cannot count them as additional subjects of examination. But book-keeping and shorthand still remain in the programme as ordinary subjects, and suppose a candidate fails in the commercial course and passes in book-keeping and shorthand, what then? In the grouping of subjects for a pass, the commercial course ranks *pari passu* with a modern foreign language. Again, while the groups for exhibitions and prizes remain as before, in the classical group in all grades and in the mathematical group in the middle and senior grades, it is only essential to pass with honours in one other subject, and not in two others, as is still the case in the other groups. With regard to the examinations next year, pass and honours questions in mathematical subjects will be set on the same paper, and in all honour papers in modern languages in the junior grade knowledge of the books prescribed for pass will be tested, not by translation, but by questions to be answered in the foreign language.

In consequence of the new Act of Parliament giving the Intermediate Board power to pay school grants dependent on the results of inspection of pupils between the ages of twelve and fourteen, the Board has issued a memorandum stating that the Act has not fixed the exact dates for calculating the ages, and the Board will at an early date consider rules for giving effect to the Act. Meanwhile the Board is appointing two extra inspectors, and schools are recommended to draw up a syllabus of the instruction being given to students between these ages.

THE annual report of the National Commissioners of Education for 1911-12 only appeared at the end of August. The reason for delay seems to be due to differences between the Commissioners and the Treasury. The Commissioners are anxious to introduce a number of reforms, some of which they consider to be urgent, but the Treasury refuses to provide the money which they will require. Among these reforms are the extension of the training course for king's scholars to a third year in the case of students of exceptional promise, a scheme for dental treatment of school children, proposals to improve the position of teachers by paying better salaries in the more important schools, by increasing the number of teachers in the higher grades, and by paying salaries monthly instead of quarterly, and suggestions for instituting higher grade or continuation schools. The Commissioners are very severe on the lack of sympathy shown by his Majesty's Government and by the Treasury for these reforms, which are urgently needed in the interests of education.

#### WELSH.

At the Welsh Summer School at Bangor Sir Edward Anwyl lectured on the development of Welsh literature in the eighteenth century. He pointed out that it was a mistake to regard everything that had been written in Welsh prose as necessarily literature. For the purpose of literature the artistic aim was necessary. Few Welshmen had written artistic prose; it was in the direction of poetry that the artistic bent of Welsh men of letters had generally tended. In the eighteenth century there was a true literary spirit in spite of certain imperfections in "The Sleeping Bard" of Ellis Wynne, and in "The Mirror of the Early Ages," by Theophilus Evans. One of the chief prose writers of the eighteenth century in Wales was Williams of Pantycelyn, whose fame as a hymn-writer had somewhat obscured his services to Welsh prose. He was, unfortunately, somewhat too careless of linguistic accuracy in his prose writings, but nevertheless, Wales owed much to his prose, as well as to his verse. Sir Edward further spoke of the advantage which had accrued to the Welsh language in the eighteenth century from the devotion to it of men of true scholarship and classical training, like Goronwy Owen and Brydydd Hir, who were both trained in Latin verse composition.

Also at the Bangor Welsh Summer School the headmaster of the Dolgelly County School Mr. John Griffith gave an address in which he said: "The acuteness of the difficulty in the school may be estimated from the following facts. In one of the classes of the Welsh Summer School this year there are some forty students, nearly all teachers, drawn from schools spread over seven counties in North and South Wales. To the question, 'What percentage of the children at your school use Welsh as the home language?' the answers returned varied from none at all to ninety-eight, and presented numbers in every decade between these two extremes of percentage. An aggravation of the difficulty is indicated by the answer of one

student: '30 per cent. of the children, but 70 per cent. of the parents' use Welsh as the home language—a condition common to many districts. Even if this highly irregular cleavage applied to language only the difficulty would still be serious enough; it is well known, however, that the language corresponds very closely with a difference of type in home life and in literary, social, and religious experience." There were eighty-five students in attendance at the various classes in the Welsh Summer School.

At a meeting of the Cymmrodorion Society of California, the director of music at the forthcoming Panama-Pacific International Exposition Eisteddfod, to be held at San Francisco in 1915, spoke in high praise of the Rhondda Choir which won the chief choral prize at the Pittsburg Eisteddfod. He said the Pittsburg Eisteddfod had set the high-water mark for the standard of excellence in competitive singing in America. He had had thirty-three years' experience as a composer and musical conductor of choirs in South Wales and in the United States, but the performance of the successful Rhondda Choir had never been surpassed or even equalled by any choral combination which had visited America. Those sturdy Welshmen of humble mien had so electrified the audience by their remarkable rendition that the 10,000 spectators cheered enthusiastically for fully ten minutes. The choir conductor had assured him that the Rhondda Male Voice Choir would compete for the 10,000 dollars chief choral prize at the San Francisco Eisteddfod of 1915. Welsh-American choral societies from all parts of the United States had already signified their intention of competing at San Francisco.

It has been proposed to raise the age of admission for pupils to the Swansea Girls' High School from eight to ten years of age, but the Welsh Department of the Board of Education has written to the local education authority to say that, having in view the present insufficient supply of public elementary school accommodation in the borough, it would suggest that the present is not a fitting time for making the proposed change.

AMONGST the theses submitted by successful candidates for the degree of M.A. in the University of Wales the following were the subjects in the departments of classics:—In Greek: (i) "A Study of the Laconian Dialect"; (ii) "The Treatment of Odysseus in Homeric and Post-Homeric Greek Poetry"; (iii) "The Pottery of the Hellenistic Period to the Rise of the Aretine Wares." In Latin: (i) "The Jews in the City of Rome during the First Centuries B.C. and A.D., including a Study of the References to them in Greek and Latin writings"; (ii) "The Syntax of Archaic Latin, with Special Reference to the Usage of Catullus and Lucretius." In English, the subjects for M.A. theses were: (i) "The Sociological Novel in the Nineteenth Century" (ii) "Thomas Hardy: His Views on Life and Nature"; (iii) "The Problems Arising out of Shakespeare's 'Troilus and Cressida'"; (iv) "Geoffrey of Monmouth's Chronicle and its Influence on English Literature."

## JUNIOR GEOGRAPHIES.

- (1) *Arnold's Junior Geography*. By W. Maclean Carey. 162+vi pp. Maps and diagrams. (Edward Arnold.) 1s.
- (2) *Junior Regional Geography. The British Empire with its World Setting*. By J. B. Reynolds. 200+viii pp. Illustrations, maps, and diagrams. (Black.) 1s. 4d.
- (3) *Junior Geography*. By G. C. Fry. 368+xvi pp. Maps and diagrams. (Clive.) 2s. 6d.
- (4) *A Junior Geography of the British Isles*. By T. W. F. Parkinson. 176 pp. Maps and diagrams. (Collin's Clear-Type Press.) 1s. 6d.
- (5) *A Junior Geography of Scotland*. By David Frew. 96+iv pp. Maps. (Blackie.) 1s.

MR. CAREY'S book (1) devotes half the pages to Europe and more than a quarter to the British Isles. New Zealand has two pages and Argentina about half a page. Statistics relating to areas and populations are included in an appendix. Mr. Fry (3) occupies about sixty pages with definitions of terms, gives more than one-third of the book to Europe, including one-quarter to the British Isles, four pages to New Zealand, and about a page to Argentina. Miss Reynolds (2) uses about one-third of her book for Europe, rather more than one-quarter for the British Isles, and gives three pages to New Zealand. Mr. Parkinson (4) takes a quarter of his space to discuss simple geographical principles, a second quarter to deal with the British Isles as a whole, and the remainder for a detailed treatment of smaller areas. Mr. Frew (5) has a short introduction, an equally short treatment of Scotland in three regions, and devotes the remaining pages to the whole country.

From this analysis of these books several facts emerge regarding junior geographies. The most important of these lies in the relative emphasis which the authors give to the British Isles and Europe. It appears that pupils at the junior stage are to be expected to know the nearer lands very completely and the more distant lands with much less detail. A second fact concerns what may be called definitions of geographical terms. While in some cases these terms are explained when they are used, and in others, particularly (3) and (4) they are grouped together at the beginning of the book, there seems general agreement that an explanation of some terms is necessary. Mr. Fry (3) deals with these terms most thoroughly, e.g., under the heading "Land Forms," he treats of mountains, hills, plains, plateaux, valleys, water-heds, basins, passes, scarps, mountains of denudation, folded and residual mountains, volcanoes, rivers, alluvium, sedimentary rocks, deltas, sand-banks, bars, glaciers, moraines, the Ice age, coast lands, sand-dunes, fjords, continental and oceanic islands, coral reefs, and atolls. A third point refers to geology, to which half-hearted references are made, except by Mr. Parkinson, who gives several pages to the structure of the British Isles.

The greatest disagreement between these books lies in the treatment of place-names. As an example, consider the cotton industry of Lancashire. There is a general agreement to mention the bases of the cotton industry upon the coalfield, the damp atmosphere; the situation of Manchester and Liverpool, and the Manchester Ship Canal. The cotton towns which are named vary in number, from four to thirteen; in two cases special maps are added to emphasise the location of these towns and the distinction between spinning and weaving centres is sometimes made. Now, most of the facts stated could have been discovered by the pupils for themselves either from the maps included in the books or from an atlas; the really important

facts which the pupils could not find from maps, the relative importance of this manufacturing region in comparison with all other manufacturing regions in the world, the supreme value of the cotton trade to the United Kingdom, the remarkably dense population in the district, and the human aspect of the district as a whole—these things, which are truly geographical, are sacrificed for mere topographical information.

This search for analysis of detail to the comparative exclusion of synthesis and outlook and comprehensive grasp appears to be a general defect of the books as a whole. The conception of the unity of the world and of the world's workers, the notion of broad likenesses with divergent details, the feeling that this, that, or the other people is not living its reaction to its environment in solitude—surely these are topics of importance to junior geographers.

## RECENT SCHOOL BOOKS AND APPARATUS.

### Modern Languages.

(1) *La cour des Miracles* (Victor Hugo). Edited by H. M. O'Grady. 45 pp. (2) *Louis XI. et Charles le Téméraire* (Michelet). Edited by S. A. Richards. 55 pp. (3) *Le Château de Ghismondo* (Nodier). Edited by P. L. Rawes. 36 pp. (4) *Histoire d'un concert de 1813* (Erckmann-Chatrian). Edited by P. L. Rawes. 47 pp. (5) *Légendes Normandes* (Louis Bascan). Edited by A. H. Legh. 48 pp. (Dent.) 4d. each.

(6) *French Verbs Tabulated*. By Samuel Wild. (Dent.)

(1) A good sample of "the Middle Ages after Victor Hugo," as portrayed in "Notre-Dame de Paris." The language is naturally not very easy. After a page or so of text, about an equal amount of "exercices," containing some sixty to seventy questions, follows. As twenty of these "exercices" are given, there is a chance of the grammatical part overshadowing the literary side of the book, and so destroying the reader's interest. The questions themselves seem intelligently framed.

(2) Michelet's account of Charles XI. is most attractive. Still, the reader must not forget Taine's criticism of the historian: "Que se dit le lecteur en le quittant? Un seul mot, et funeste: je doute." The rage for inserting questions after portions of text is in danger of defeating its object.

(3) Charles Nodier will be remembered by an excellent little story dealing with the pronunciation of the French *t*. "À l'Académie M. Nodier disait que le *t* entre deux *i* a, sauf quelques exceptions, le son de l's. 'Vous vous trompez, la règle est sans exception,' lui cria Dupaty. 'Mon ami,' répliqua Nodier, 'prenez pitié de mon ignorance, et faites-moi l'amitié de me répéter la moitié de ce que vous venez de dire.'" Perhaps this may induce lovers of wit to take up "Le Château de Ghismondo." The story has the merit of being little known in England.

(4) The story of Joseph Bertha drawing lots at the conscription of 1813 was worth reprinting. We notice among the questions: "Apprenez par cœur . . ." This should stand pupils in good stead when they attempt composition. There are copious "exercices."

(5) Of these five books "Légendes Normandes" is the most modern. The four stories contained in it will be welcomed by young readers. We notice on p. 4 a misprint, "If" for "Il," and wonder whether the following note is really helpful. "reconnut infinitif reconnaître." The series of questions are very complete, as in all these five readers.

(6) The table of French verbs is likely to be of use. It has the advantage of employing tense-names recommended by the Joint Committee. We suggest that unfolded sheets should be procurable. One table framed between two sheets of glass would be a capital addition to a class-room.

*A French Notebook*. Arranged by W. E. Weber. 112 pp. (Cambridge University Press.) 1s. 4d.—This notebook recalls a little book of a bygone day, Prof. Perini's "Bridge"; but it is a more impressive and useful book, skilfully compiled by one who thinks more of the requirements of the class-room than the answering of examination questions. It is a sound principle that the young learner should collect his own materials. In assigning them to their proper place he will derive much help from this *cahier français*. Suitable space is allotted to the various parts of speech and to various aspects of the vocabulary; even a section on pronunciation has been added. It is only natural that teachers may differ as to the advisability of including this or omitting that; to some extent they can supplement the notebook by utilising the blank pages thoughtfully provided. Room has been left for English renderings; the reform teachers can use it for other purposes. The only criticism of a general kind that we have to offer is that the blank space on which the pupil is to write should have been lined. It would have added a little to the expense of production, but would have contributed greatly to neatness of work on the part of the pupil.

*A Practical Guide to a Scientific Study of the German Vocabulary*. By Dr. A. Prehn. xvii+257 pp. (Oxford University Press, American Branch.) 3s. 6d.—The conditions under which German is taught in the United States, and especially the matriculation requirements, differ very much from what we find in this country. There the language is generally started later, and a great deal of reading has to be done. This justifies Dr. Prehn in producing a book which we should scarcely place in the hands of our beginners. The plan of the book is not altogether satisfactory. Thus, instead of supplying a classified vocabulary of common words, the compiler has confined himself, in part i., to "self-explanatory" words, which leads to the introduction of many *Fremdwörter* (e.g., *Territorium*, *formieren*, *respektieren*, *salarieren*); in such cases the preferable native equivalent should have been supplied. The second part, which contains "German words which can be made self-explanatory by the substitution of consonants or vowels," is not well arranged, and is in part misleading; thus, to say that in *fruit* the *ch* of *Frucht* is lost gives quite a wrong impression. Next comes a section on word formation, which is satisfactory, and a number of word groups, perhaps the best part of the book. The work is generally accurate; but on p. 4 *Plunder* and *Stuhl* are feminine, *Hahn* is a derivative of *Henne* on p. 9; *steinern* is rendered *stony* on p. 12; *Salpeter* is neuter on p. 14; *Götz* should be *Götze* on p. 24; *Laib* is neuter on p. 62. Occasionally the lists might have been added to with advantage, e.g., *mittelbar* (p. 15), *nennen* (p. 20), *Engel* (p. 23), *sacht* (p. 47), *Mücke* (p. 48), *dutzend* (p. 40), *ander* (p. 53), *Regen* (p. 61). There are also some bright little Americanisms, such as *bum*, *bundle*, *smicker*.

### Classics.

*Sermo Latinus: A Short Guide to Latin Prose Composition*. By Prof. J. P. Postgate. New edition, revised and greatly augmented. vi+186 pp. (Macmillan.) 3s. 6d.—When Prof. Postgate first published this book, he said (if our memory serves us well) that he did not know of any other way of teaching composition than the time-honoured way of translating pieces

of English into Latin. He has learnt in twenty-four years that there are others; or perhaps we ought to say, he has found that others which he already knew of were more valuable than they seemed to be. The present volume, then recognises the value of spoken Latin for practice, and of "free composition." If adopted at the beginning, to speak, he thinks, would be the best way of learning Latin, but he doubts whether this will ever be common. It is something for those who have attempted reform on these lines that a man of Postgate's eminence should declare in its favour; and it is a necessary consequence that if his view is correct, teachers ought to make themselves fit to carry it out. A few hints on "free composition," its uses and its dangers, would have been very welcome; some subjects for themes are given, and that is all. But let that pass.

The principles of transferring thought from English to Latin are here set forth, quite clearly, and with hints and cautions. Especially those matters in which the two languages differ are carefully discussed, such as the effect of order, connection of sentences, metaphor. These are so condensed that they are not easy to summarise, and so full of good sense that they need no cautions. We have noted one misprint, "this much" for "thus much" (p. 5). A hundred and fifty pieces of select English are added, and there is a key.

Apologists for Latin should note the remarks on the value of language study in clarifying thought; the want of it, as is pointed out here, has caused most of the success of professional politicians in bamboozling English people.

*Plauti Aulularia.* Edited by E. J. Thomas. xiv + text unpagged + 48 pp. (Clarendon Press.) 4s. 6d.—It is a blessing to have a good edition of this amusing play, which is well fitted to read in school. The book is well and clearly printed, the notes are quite satisfactory; as instances of their value we may cite 16 *sequi*, 107 *magister curiae*, 518 *θυλακισται*, 701 *Picis*. More questionable are those on 6 *suasus* and 129 *utrique*. In old Latin there is no need to assume any further explanation for a free use of the infinitive (common with other languages) than that the special Latin rules were not yet fixed; and *utri* and *isti* as genitives fall in line with the wider use of this ending found at a certain time, it need not be due to a dropped *s*. So with *istuc* and *huc* (263); they are surely for *isto-ce ho-ce*, like *eo quo*, not neuter pronouns.

*A Greek Vocabulary for the Use of Schools.* By T. Nicklin. xii + 104 pp. (Cambridge University Press.) 2s. 6d. net.—Mr. Nicklin does not seem to have seen Lodge's or Arnold's Latin vocabularies, or he might have been inspired to make this book without the aid of the typewriter, which seems to be his Egeria in some strange way. The vocabulary contains:

(i) All words found more than twenty times in Euripides and Thucydides; about 1,300. Words that occur 100 times are underlined, and index numbers show how often they do occur.

(ii) About 270 words used fifteen times and above in the Gospels and the Acts, these also having certain indications of their use.

(iii) One hundred and fifty words found at least once in three out of four books of the Anabasis.

(iv) Four hundred common words in Demosthenes not in the above lists, the whole including all those used by him more than twenty times.

(v) Seventy words found at least fifteen times in Isocrates. The total number is about 2,000, of which 1,500 are Attic.

There is no need to comment on the usefulness of this little book.

### English.

*A Few Overs.* By D. L. A. Jephson. 38 pp. (Heffer.) 6d.—Very rarely are national sports the theme of verse. Hunting, of course, is, or was, much sung; tennis, golf, even football, await singers; but cricket is more fortunate. Norman Gale, Francis Thompson, E. V. Lucas, have all celebrated it; and here is a great cricketer, prefaced by C. B. Fry, addressing himself to boy-critics. They will read, re-read, and understand. Strutt (1801) quotes D'Urfey (1719):—

"Her was the prettiest fellow  
At football or at cricket,  
At hunting chase or nimble race  
How featly her could prick it."

"The bowler takes his place by the side of a small batton or stump set up for that purpose two-and-twenty yards from the wicket, and thence delivers the ball with the intention of beating it down." Things are not changed much; and Mr. Jephson sings:—

"Play with a straight bat, sonnie,  
In the game of life or at school;  
You may have hard luck,  
You may make a duck,  
But stick to the golden rule:  
Play straight."

The "overs" are reprinted from many magazines, and school libraries will welcome them.

*Music on the Shakespearian Stage.* By G. H. Cowling. 116 pp. (Cambridge University Press.) 4s.—This is a book on an important but little-known subject. For there is no doubt that in "the golden age of English music" there was closer connection between the play and the song than there is now; and Mr. Gordon Craig has not yet shown us how, where, and when we can introduce dramatic and emotional music to interpret character. Our music to-day is the signal for whisky and chocolates. Mr. Cowling gives us ten illustrations from authorised cuts, and brings stage and music before everyone in a book not unpleasantly learned. A bibliography is added.

*The Fairy Book.* By Mrs. Craik. 368 pp. (Macmillan.) 1s.—A re-issue of this book of Miss Muloch's is well timed; the more expensive edition is not so well known as it deserves to be. Nearly forty of the best favourites are here, and the ease of the English, the strong common sense which dictated the selection, the avoidance of the very long tale, need no commendation. It is a *handy* book for schools; it neither enforces nor forgets morals; it eschews archaisms; and it has no learned notes. It is just the book which a youngster would like to call his very own.

*The Wonders of London.* By E. L. Elias. 127 pp. (Harrap.) 6d.—This, though slight, is needed; and it would be a good thing if the writer could do a more advanced work for children of fifteen. For neither London men nor London boys know London; and it is not an unknown thing for a young person to return home unable to find the British Museum. But a guide-book for the young to be read at home and followed out afterwards is the very thing required. In life, in literature, in famous cities, in museums, the guide is a necessity; without him we are rudderless; but, as a rule, he cannot be found even by those willing to pay.

### Geography.

"Daily Mail" *Chart of the Panama Canal.* School Edition, with Notes for Teachers. (Philip.) 3s. net.—This chart includes a bird's-eye picture of the canal

zone in colours, a map of Panama, a map of the world, showing the regions which will be affected as to distance from European and American ports by the opening of the canal, plans of the canal and the Gatun dam, diagrams of the locks, the Culebra cut, the ship canals of the world, and the lengths of alternative routes. Most of the features regarding the canal are summarised on this sheet, which is mounted on linen and eyeletted. The notes, which are mainly historical, are accompanied by suggestive exercises.

*Questions and Exercises in Geography.* By R. J. Finch. (Ralph Holland.) 2s. 6d. net.—Mr. Finch now publishes in one volume the various sets of questions and exercises which he has collected and published piecemeal. Teachers will find such a collection useful and suggestive. We note that in those cases where references are given to the sources of the questions that they are limited to the Universities of Oxford, Cambridge, and London. Mr. Finch would certainly have found questions of a different type, and in some ways of much greater utility, had he cast his net a little wider. The short introduction contains sample solutions of certain questions which set before the pupil a high ideal.

*Animal Geography.* By M. I. Newbigin. (The Oxford Geographies.) 238 pp. (Clarendon Press.) 4s. 6d.—Miss Newbigin's book is a fitting companion to Dr. Marcel Hardy's work on "Plant Geography," noted in these columns some months ago. It is perhaps a matter for regret that there are no maps, since maps of the kind necessary for such work are not readily accessible to the teacher of geography. Thoroughly enjoyable, replete with information carefully set out in its geographical significance, this book should find a place in school and teachers' libraries side by side with the earlier volume. We lay it down with the reflection that no matter how definitely animal life is related to its physical environment the number of animals of importance to the human race as it now inhabits the globe is relatively very small.

*The Atlas Geographics.* Part i., *Physical Geography.* By Thomas Franklin and E. D. Griffiths. 88 pp. Maps and diagrams. (Johnston.) 1s. 6d. net.

*Elementary Atlas Geography.* (In eight parts.) By the same authors. Part ii., *British Isles.* Part iii., *Europe.* 6d. each part.

These books attempt to combine the atlas and the text-book and to provide exercises for the pupil so that he may learn geography by active labour. In the "Physical Geography" there are the usual class-room exercises on measurement, climate, and relief, as well as a chapter on the relation between man and his environment. The elementary books contain much well-arranged information, several coloured relief maps, and many exercises for the pupil. There is a handy pocket for additional maps, which may be obtained loose from the publishers. Teachers should see these books.

#### Mathematics.

*A First Formal Geometry.* By R. W. Bayliss. viii+152 pp. (Arnold.) 1s. 6d.—We think this is a book which is likely to be very useful, and it deserves to be widely known. The text is based upon Schedule B of the Oxford and Cambridge Local Examinations, and it assumes that before pupils read it they have had a thorough drilling in methods of construction and concrete examples. An excellent feature of the book is its brevity, the essential facts of plane geometry being presented in a series of forty-eight propositions and their corollaries. In this respect it contrasts very favourably with most modern

geometries, of which a general fault is their excessive diffuseness, rendering it difficult for beginners to distinguish between the propositions which are fundamental and those which are only of secondary importance. Mr. Bayliss has not confined himself to Euclid's proofs of the theorems. He has borrowed some from French writers, and others, on parallels, appeared in *THE SCHOOL WORLD*, December, 1912.

We are probably right in considering this to be a first essay towards a more complete text-book. Perhaps in this latter a discussion of definitions and postulates will be attempted. Meanwhile, teachers will find much matter worthy of their consideration in the series of notes dealing with the purely logical aspects of the propositions. The examples are largely original, and there is a chapter introductory to solid geometry.

*A School Arithmetic.* By A. C. Jones and P. H. Wykes. vii+440+xxxii pp. (Edward Arnold.) Without answers, 3s. 6d.; with answers, 4s. 6d.—Boys using this arithmetic are supposed to have already received a good drilling in the elementary operations. The course is a three-year one. The first year is occupied with revision, an introduction to algebra as generalised arithmetic, and experimental graphs. In the second year logarithms are introduced and easy mensuration. Further developments of these matters are considered in the third year, together with stocks and shares, compound interest, and some arithmetical theory. In addition to the usual sources, the authors have not hesitated to draw upon geography, physics, and chemistry for examples. In the chapters dealing with commercial subjects the information and examples are of a thoroughly practical character. We think too much attention is given to contracted methods, and in particular we object to boys having to learn rules regarding the number of digits to be retained. Contracted methods are good enough for rough estimates, but logarithms should be used when results as accurate as the data permit are required. We also think that more attention ought to be paid to methods of checking the accuracy of numerical calculations. In other respects we consider the book very sound and thoroughly useful.

#### Science and Technology.

*Earth Features and their Meaning.* By W. H. Hobbs. xxxix+506 pp. (New York: The Macmillan Co.) 12s. 6d. net.—This delightful volume ought to be in the reference library, and accessible to the senior pupils, of every school in the curriculum of which physical geography is included. The book—founded on a course of lectures delivered in the University of Michigan—describes the different types of surface relief occurring in various parts of the world, and traces the geological processes which have been concerned in their development. To this task Prof. Hobbs has brought not only a marked power of explaining the technicalities of his subject in clear and interesting language; he shows also the experienced teacher's skill in bringing out the significance of the facts with which he deals. The book thus appeals to the general educated reader no less than to the student. Most text-books of geology attempt to survey the whole field; the scope of this is restricted to the processes which have left their mark most plainly on the configuration of Europe and northern North America. Stratigraphy and palæontology are thus excluded as foreign to the main object, with great gain to the general effectiveness of the book. The result is a remarkably clear and readable account of the moulding of the present surface features of these countries, the results of recent discoveries being well to the fore throughout the book. As an aid to

further study, useful lists of books dealing more fully with the various departments of the subject are provided at the ends of the chapters, while appendices give instructions for the preparation of laboratory models and topographical maps, and for the quick recognition of common minerals and rocks. A novel feature, which many readers will value, is an appendix outlining itineraries for travellers interested in the scientific study of scenery. Among these are suggested tours in Scotland and the continent of Europe. The volume is attractively got up, and excellently illustrated with 24 plates and 493 figures in the text. We know no book likely to give the student or tourist greater help in picking out for himself the salient features of a landscape and interpreting their history aright.

*A First Book of Experimental Science.* Arranged by W. A. Whitton, from "Lessons in Science," by Prof. R. A. Gregory and A. T. Simmons. 137 pp. (Macmillan.) 1s. 6d.—Mr. Whitton has compiled this book, from the well-known "Lessons in Science," by Gregory and Simmons, in order to provide a first-year text-book for use in schools, and more particularly to suit those boys who wish to enter the Royal Navy as engine-room artificers. Apart from the suitability of the book for the purposes it most immediately serves, the author has arranged a very excellent first-year's science course, which might be taken as chemistry and physics simultaneously with a little rearrangement. The experiments are well chosen, although some of them are perhaps more suitable for demonstration than for the laboratory. The illustrations are clear, and amply serve their purpose, and altogether the book can be recommended unreservedly.

*An Introduction to the Chemistry of Plant Products.* By P. Haas and T. G. Hill. 401 pp. (Longmans.) 7s. 6d. net.—Although primarily intended for students of vegetable physiology, this important treatise will appeal more particularly to those readers of THE SCHOOL WORLD who are concerned with the teaching of botany and chemistry, and it may be asserted safely that every teacher of these subjects should read it carefully. Present-day science is becoming astonishingly interwoven and interlocked. No longer can the chemist confine himself to chemistry, and it is perhaps fortunate that there should be neutral zones wherein men of science of many denominations can work at the same problems. From the point of view of efficient teaching it is most desirable that these borderland subjects should be authoritatively dealt with from all sides, and the present book supplies the necessary materials for the botanist and the chemist who are working on the common ground of the chemistry of plant metabolism.

The scope of the book is remarkably wide. Oils, fats and waxes, their constitution, occurrence, changes, and characterisation are dealt with first. The carbohydrates are fully treated, and recent work on photosynthesis brings the chapter up to date. Sections on tannins, glucosides, pigments, colloids, proteins, and enzymes are all discussed in the same thorough and satisfactory way. A glance at the footnotes will show that the authors have been very painstaking in searching the literature for their material, and when the fact is mentioned that the bulk of the references date during the past decade, enough is said to show that the book is no mere compilation of existing works, but an original treatment of original experimental matter. At the end of each section is given a list of supplementary references which the advanced student of the subject would do well to consult. The appearance and get-up of the book are excellent, the table of contents and index are complete and trustworthy,

and the book as a whole is a very creditable production.

*Laboratory Text-Book of Chemistry.* By W. S. Bryant. 240 pp., interleaved. (Churchill.) 4s. net.—This book, although of a type familiar in physics, is rather novel from a chemical point of view, in that all the experimental results are written up directly by the pupil in the spaces provided in the text, and in the interleaving. Whilst this arrangement may have something in its favour in the cleaner atmosphere and environment of the physical laboratory, it is rather open to doubt whether the beginner in chemistry would not find it a difficult matter to enter up his notes in a style suitable to the very pleasing get-up of Mr. Bryant's book.

The author tilts at the current custom of "spoon-feeding" boys with predigested shoddy "research," and urges that from his own experience a young student can get clear ideas of atom and molecule at quite an early stage. It must be pointed out that the research school embodied a timely reaction against the old style of teaching, wherein a boy's first lesson in chemistry was occupied with "Oxygen, atomic weight 16, molecular weight 32, vapour density 16, formula  $O_2$ ." That this reaction has swung too far in the other extreme is fairly obvious. Mr. Bryant attempts the happy mean. The course of work is sound and thorough, and its scope includes mixtures and their separation, water, elements and compounds, hydrogen, oxygen, fundamental chemical laws, the air, nitrogen and its simpler compounds. An excellent feature of the book is the full historical treatment in the chapter on fundamental laws of chemistry.

*Experimental Hygiene.* By H. V. Verrells. 147 pp. (Blackie.) 2s.—This book is based on the requirements of the syllabus issued by the Incorporated Institute of Hygiene. It appears to be written directly on that syllabus, since each section in the syllabus is responsible for a corresponding chapter. The result is a remarkable hotch-potch of fact and statement. No attempt is made to correlate the information, and unless the candidate for the diploma of the Institute of Hygiene has a good general knowledge of physics, chemistry, and biology it would be futile for him to work through the experimental matter in Mr. Verrell's book. The information given ranges from the simple to the complex. In chapter i. the student, in the compass of eight pages, deals with microscopy. In succeeding chapters he passes on to prove that air contains one-fifth of its volume of oxygen, a gas which the author believes can be prepared by mixing potassium chlorate with manganese dioxide, and apparently to have the formula  $O_3$ . Then follows the determination of carbonic acid gas in air involving an introduction to volumetric analysis. Tests are next given for atmospheric sulphur dioxide, and also for ozone, which is described as being prepared by suspending moist phosphorus. A somewhat scrappy treatment necessarily is given to the weather, dewpoint, humidity, water, foodstuffs, alcohol, clothing, soil, poisons, eyesight, poultices, vital statistics, and antiseptics. The book closes appropriately with logarithmic tables.

*Qualitative Determination of Organic Compounds.* By J. W. Shephard. 348 pp. (Clive.) 6s. 6d.—Mr. Shephard's book is intended for university students who require help in the identification of organic compounds. The first part deals with the reactions of, and tests for, a large number of substances belonging to the chief groups of compounds and the second section is concerned with the general types of reaction which are made use of in both

organic analysis and synthesis. Between these main divisions come a chapter on the identification of unknown substances in the pure state and in mixtures, whilst at the end of the volume is a classified index which gives the more important members of the chief homologous series, their melting and boiling points, and a reference to the descriptive text. In an appendix is a very ingenious method for assisting those students who have become weary of following out the author's somewhat protracted disquisitions. This aid to identification consists of a thermometric scale, alongside which are ranged in order the melting points and boiling points of a considerable number of substances, starting with *n*-butane, which boils at 1° C., and ending with benzidine, which boils in the neighbourhood of 400° C. The student who works through this book conscientiously and thoroughly cannot fail to obtain a good working knowledge of the reactions of many compounds, and of the general properties of the chief groups. It is questionable, however, whether any useful purpose is served by the inclusion in part ii. of such sections as those devoted to tautomerism, fermentation, and polymerism, which can scarcely be said to come within the scope of a book of this kind.

#### Miscellaneous.

*Voice Training for Choirs and Schools.* By Dr. C. R. Rootham. xlvii+110 pp. (Cambridge University Press.) 4s. net.—This book is evidently the outcome of a ripe experience in teaching boys and girls singing, and although most attention is given to the training of church choirboys, the volume is most helpful to those whose vocation in the musical world lies in the training of school classes and school choirs. Eleven chapters are devoted to "method," and contain excellent and sound advice. The author takes up a reasonably moderate position, and carefully warns us against those faults into which the ambitious organist and choirmaster so frequently falls, particularly with boys and girls at the age of puberty. The second half of the book contains 110 pages of exercises dealing with keys and times, scales, intervals, flexibility, modulation, phrasing, and expression. These have been arranged so far as possible in order of difficulty, and have been designed to meet all the requirements of vocal technique for boys and girls, and to illustrate the points referred to by the author in the chapters on "method." The exercises for the use of pupils are published separately, price 1s. 6d. net.

*The Song Garland.* Compiled by Jules S. Joannès. 361 pp. (New York: The Macmillan Co.) 6s.—This is a collection of one-, two-, and three-part songs for girls in high schools, by the director of music of the Brooklyn High School, and in making the collection the compiler has given preference to strong, bright, effective compositions as those most in harmony with the life of the growing girl. The compiler acknowledges that the compass of the high-school girl's voice is limited, and her vocal powers immature, and claims credit for having omitted four-part songs. Having regard to the fact that most voice trainers claim that unison singing should be the rule up to somewhere about the age of seventeen, we rather find fault with him for having selected fifty three-part songs out of a total of eighty-six, unless it is intended that the girls are to take the parts in turn. This may be his intention (although in practice it is rarely found possible), for the selection contains in addition several good canons. The compilation is a good one, but considering the number of three-part selections and the price of the book, we are of the opinion that it is more suitable for women's colleges.

## EDUCATIONAL BOOKS PUBLISHED DURING AUGUST, 1913.

(Compiled from information provided by the Publishers.)

### Modern Languages.

Seidel, "Der Unsichtbare oder die Geschichte des Jungen Herrn Anton." Edited by Alfred Oswald. With Introduction, Notes, Vocabulary, and Passages for Re-translation. 40 pp. (Blackie's German Texts.) 6d.

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## CORRESPONDENCE.

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#### The Teaching of Physics.

SOME experience of tutorial and examination work in physics at Oxford has led me to certain conclusions as to the teaching of physics at school, which it may perhaps be useful to set down by way of suggestion.

From the ease with which undergraduates new to the subject pick up as much of it as is required for the Oxford Preliminary Scientific Examination, one may conclude that it does not present the difficulty which is frequently assumed, and that therefore a higher standard might be reached in ordinary physics teaching in schools than that usually shown by the candidates for scholarships and for the higher certificates of the Oxford and Cambridge Joint Board. The standard of teaching in chemistry seems to be distinctly higher, and yet physics is so fundamental, so useful, and has been made so interesting by recent developments, that it should surely be treated in schools as of at least equal importance with the sister science.

But it is perhaps in regard to these same recent developments that school teaching is most lacking. This appears from the somewhat meagre answers fre-



quently given to the "essay questions," which are now forming so important a feature of scholarship papers. Yet it is not difficult to impart some conception of the most important and at the same time the most interesting of the modern discoveries and theories. To mention one example: the Doppler effect in sound has formed a part of the ordinary sixth form curriculum for a long time past. But how many boys are taught its application to the lines in the spectrum and its use in measuring the radial velocity of the stars? It is no objection to say that this necessitates some knowledge of the wave-theory of light; for the elementary conceptions of the wave-theory are often occurring in scholarship papers, and it seems a pity to avoid reference to them at the earlier stages of physics teaching. Again, over-tones in sound are considered rudimentary; but how many boys are told anything of the similar phenomena in optics which produce series in the spectrum? Or again, why should not one go a step beyond the atomic theory and give an elementary explanation—such as that to be found in Whetham's "Recent Developments of Physical Science"—of ions, electrons, and radio-activity? Boys who are familiar with the periodic law in chemistry would probably be intensely interested in the theoretical explanation which can be derived from quite elementary experiments on the stability of negative poles surrounding a positive pole, as quoted by Whetham.

But one must recognise the danger of introducing young students to the higher parts of the subject without a sure grounding in its fundamental principles. Without doubt, the earliest branch of physics to be studied should be mechanics. Excellent as may be the chapters on mechanical principles which are to be found in elementary text-books on other branches of physics, they cannot in the nature of things serve as a substitute for a real study of mechanics. As a rule, such chapters are given up to brief definitions of various terms, and overload the student's brain with a number of memorabilia, without giving him any real grasp of the nature and importance of the things defined. My experience leads me to think that almost all the errors which beginners make in physics are traceable to imperfect conceptions of mechanical laws.

Mechanics, no doubt, is a difficult subject. It may be easier to take the path of least resistance and start from heat or light. But such a procedure can be of little educational value. It can only result in the student imagining that physics is merely a collection of isolated facts.

While speaking of mechanics, one cannot but express regret that the schoolboy, even in the highest forms, is so seldom introduced to the more elementary parts of rigid dynamics—because it is only through rigid dynamics that he can deal with many of the more actual problems of physics, including, for example, the whole series of gyrostatic phenomena, from spinning-tops to spinning worlds.

Another point which has struck me in examining the work of schoolboys is their lack of acquaintance with the application of physics to everyday life. It seems surprising that boys after three or four years' study of physics should be quite ignorant of how a motor-car or an electric tramway works, or of the arrangements for lighting their houses by electricity, or of the construction of a telephone. And yet information on these subjects is at least as interesting as the details of the corrections required by a mercurial thermometer or a dip-circle.

Finally, my experience suggests the importance of science teachers being trained in what are usually called "laboratory arts"—that is to say, glass-blowing, simple metal work, and carpentry—to such an extent

as to enable them to prepare apparatus for the less elaborate experiments without serious expense. Accurate results cannot, of course, be expected from such apparatus; but as long as they are correct to 3 or 4 per cent., this is enough in the case of school-boys—especially as, even with the best apparatus, the time required for obtaining very accurate measurements cannot well be spared.

But in the ordinary academic course such matters as glass-blowing and metal work find no place, and the physics curriculum is usually so wide that the candidate for honours can scarcely find time for these things before his degree. Thus it is practically only the research student to whose lot such experience falls. And this is one reason for thinking that schools make a mistake in not encouraging more than they do men who have had experience in research. One hears of research people who have had designs on the teaching profession being told that the time they have spent on research has been wasted. Surely this ought not so to be! A year spent on research work, although it may not lead to any important results in the advancement of science, gives a man a greater command over his subject, a greater capacity for teaching it in an interesting manner, and a greater feeling of independence in his laboratory demonstrations than he can get in any other way.

OSCAR F. BROWN.

#### Difficulties in Elementary Mathematics.

THE authors of one of the most modern school algebras quote, on their title-page, the following excellent maxim from the French mathematician Tannéry: "J'ai horreur d'une enseignement qui n'est pas toujours sincère; le respect de la vérité est la première leçon morale, sinon la seule, qu'on puisse tirer de l'étude des sciences." Every true teacher must cordially agree with this, but there may be some others like myself who find themselves forced to teach certain mathematical "proofs" which they themselves cannot say with sincerity that they believe in. It is therefore in the hope that my own difficulties may be cleared up by someone more capable than myself that I offer these few remarks to your readers. I do not lay claim to the title of mathematician, and it is with a good deal of diffidence that I venture into this field, and with the utmost deference to those who invented these proofs, and even to those who have embodied them in their own works.

When a student starts on the study of geometry, the first proposition presented to him is, usually, that the angles at a point in a straight line and on one side of it are equal to two right angles, and he is given a "proof" of this undoubted fact—a proof that has apparently held good for 2000 years. I tremble at my own audacity in calling it in question! Here follows a summary of the proof, and I only ask that due consideration be given to it before I am taken to task for doubting; if I am wrong I must suffer.

If the two angles made by one line at its junction with the other are equal, each is a right angle by definition, and their sum is two right angles; that is obvious enough. If the two angles are not equal, we are told to erect a perpendicular at the point, and so obtain angles that are equal. This seems to me to be nothing more nor less than "begging the question"; when or where has it been *proved* that it is *always* possible for one straight line to make equal angles at its intersection with another? The definition says: "If a straight line, &c.," the first part of this proof says: "If the angles are equal"—are we therefore justified in assuming that equal angles can always be constructed? If it is argued that such is obviously the case, then I fancy the retort is equally justifiable, that the whole thing is too obvious to need a proof, and

that it would be much more satisfactory to embody the statement in an axiom.

I copy the following "proof" from one of the most modern school arithmetics:—

**Law 1. The Commutative Law.  $A+B=B+A$ .**

Let  $\frac{a}{b} = \frac{c}{d}$  be two fractions,  $a, b, c, d$  being integers.

$$\begin{aligned} (1) \quad \frac{a}{b} + \frac{c}{d} &= \frac{ad}{bd} + \frac{cb}{db}. \quad (\text{This has already been proved}). \\ &= \frac{ad}{bd} + \frac{bc}{bd} \quad (\text{for } db=bd \text{ and } cb=bc, \text{ since } b, c \\ &\quad \text{and } d \text{ are integers}).^1 \\ &= \frac{ad+bc}{bd} \\ &= \frac{bc+ad}{bd} \quad (\text{for } ad+bc=bc+ad, \text{ since } ad, bc \text{ are} \\ &\quad \text{integers}).^1 \\ &= \frac{bc}{bd} + \frac{ad}{bd} \\ &= \frac{cb}{db} + \frac{ad}{bd} \\ &= \frac{c}{d} + \frac{a}{b}. \end{aligned}$$

Text-books on arithmetic and algebra will furnish quite a number of proofs similar in a greater or less degree to the above. They are inserted to prove the commutative and distributive laws which lie at the root of all algebra and arithmetic. They may be rigidly accurate and strictly logical for all I know, but are they really the best that can be arranged? Is there no simpler and less cumbersome method of showing that  $A+B=B+A$  in all cases, except the above? How many students of elementary mathematics can appreciate such a proof? Would it not be better to assume that certain principles lie at the root of the science of numbers, obviously true, but not capable of satisfactory proof? Most of the other sciences have been founded on assumptions and theories not capable of direct proof; no chemist or physicist has yet actually seen, weighed, or measured an atom directly, yet the sciences of chemistry and physics seem very firmly established upon the atomic theory as a foundation.

E. G. BRYANT.

Grey Institute, Port Elizabeth, South Africa.

MR. BRYANT will find that the proposition which stands first in the geometry he uses is the thirteenth of Euclid's first book, and that it is preceded by two propositions showing that perpendiculars can be drawn to a straight line from any point within or without the line. In the sequence of argument adopted by Euclid the proof is valid, but if this sequence is departed from another method of treatment is necessary. One frequently adopted is to introduce the concept of a "straight angle," with the axiom that all straight angles are equal, and to define a right angle as half a straight angle. The proposition then follows from the definition.

It is now recognised that a formal treatise on geometry or algebra should begin with the statement of the set of fundamental assumptions or postulates from which all the other propositions are to be deduced by the processes of logic. The set of assumptions must be consistent, sufficient, and independent. For centuries Euclid's "Elements of Geometry" and one or two other works by Greek geometers were the only representatives of this ideal form of scientific text-book. They are not perfect. Euclid does not explicitly state some of the assumptions he uses, and his set is not a sufficient one.

<sup>1</sup> As far as integers are concerned, the laws have been proved in an earlier part of the work by diagrams of dots.—E. G. B.

It is to be noted that the choice of a set of fundamental postulates is to a great extent arbitrary, and propositions which appear as deductions in one way of developing a science may be taken as postulates in another way. Writers of modern school geometries usually adopt Euclid's set of postulates, but alter the sequence of propositions, and the results are sometimes not very satisfactory. However, it is pretty obvious that books on algebra or geometry for young learners cannot be constructed on the same lines as a formal treatise. Of course, no progress can be made without a set of fundamental assumptions, and these must be consistent, but experience shows that it is not desirable to insist on their independence; in other words, a number of elementary propositions the truth of which is obvious may be accepted at the outset without formal proof. Their deduction from the fundamental set of postulates forms a good exercise at a later period. In like manner one would not trouble a beginner in algebra with a proof of the commutative law for fractions, but the reasons for this procedure are based in psychology and not in mathematics.

J. B. DALE.

### The Greek Mind and its Expression.\*

WHILE thanking you for the courteous notice of my "Ancient Greece" that appeared in the September issue of your journal, may I ask you to allow me to say that several of the "mistakes" and "misprints" detected by your reviewer appeared in my book on the responsibility of very well-known authorities. Moreover, I am really curious to discover what your reviewer means by saving of me: "he will not let Homer write in the Homeric age, but soon after it. We are grateful for one Homer, but it must be confessed that Homer does not write as if his setting was antiquated." I confess that I can extract no sense from this. It seems to mean that the writer believes it to be possible that Homer was a contemporary of Agamemnon and Achilles. But as I have never heard of anyone professing such a creed I am completely puzzled.

H. B. COTTERILL.

Freiburg i. Br.

I UNDERSTOOD Mr. Cotterill to mean that Homer was describing a state of civilisation that was past in his day. Andrew Lang has shown, I think, that this cannot be the case.

THE REVIEWER.

## The School World.

A Monthly Magazine of Educational Work and Progress.

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# The School World

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SIXPENCE.

## THE CURRICULA OF SECONDARY SCHOOLS.

IN the September number of *THE SCHOOL WORLD*, attention was directed to the congested state of the secondary-school curriculum, especially in the junior and middle forms, *i.e.*, in the case of boys and girls under sixteen years of age. The upper forms present a different problem, because in them the work is dominated by the requirements of examinations controlled chiefly by the universities, the frequent result being premature specialisation—not too many subjects, but too few. But in the main part of the school, as we pointed out, the tendency is to multiply “subjects” until thorough work in most of them becomes impossible. For reasons that need not be repeated here, the evil is greater in girls’ schools than in boys’, and is beginning to form a serious set-off against the keen intelligence and eager activity that have been brought to bear upon girls’ education during the last few decades. In endeavouring to suggest remedies for the evil, we ventured to warn teachers against what we characterised as “the fallacy of the specialist,” the fallacy of supposing that the ever-increasing “subjects” into which university and other authorities tend to divide the field of knowledge are applicable as they stand to the education of boys and girls; we urged that in any case there is no need to make separate provision in the time-table for all these subjects at all stages of school life; and we expressed the opinion that the plan of “intensive” study, for a limited period, of a certain subject or branch of a subject, has not hitherto received the attention it deserves.

The Board of Education has just issued a memorandum on the curricula of secondary schools (Circular 826, price 2d.), which brings the whole problem into the area of current discussion, and forms ample justification for an early return to the subject in these columns. This memorandum is divided into two parts. The first part deals with general principles of

organisation which, though they are treated with special reference to the Board’s regulations, apply to a large extent to all secondary schools alike; whilst the second part is specially drawn up for the information of the headmasters and mistresses of those schools which receive grants from the Board and work under the regulations. There were no doubt very good reasons for adopting this arrangement, though we note that it involves many repetitions and a rather inconvenient number of cross-references.

One point of exceptional interest at the present time is touched upon in the introduction. It is that of vocational education in relation to the secondary school. Upon this point the Board says:—

The relation between the secondary school and the technical school is materially affected by the increasingly widespread conviction that even the general education of boys and girls will gain in effectiveness if their work at school is to some extent brought into direct connection with their probable occupations in after-life. Many interesting and useful experiments are already being made in this direction in secondary schools, and there is room for a much wider development of activities of a definitely practical kind which, hitherto, have been generally held to lie exclusively within the scope of the technical school. While it is not yet possible to determine the precise extent to which it may ultimately prove desirable to give a vocational bias to the curriculum of a secondary school, this memorandum will be found to contain a number of specific suggestions as to the kind and degree of modification in this direction which may even now be wisely attempted in schools where a demand for such provision exists.

Though the memorandum does not explicitly say so, there is probably a close connection between the general lack of this “vocational bias” and the unfortunate fact recorded in the immediately preceding paragraph:—

There is no doubt that pupils are often admitted to secondary schools who do not stay there long enough to profit adequately by the education provided. In

some areas many boys and girls enter secondary schools at or after the age of twelve, who neither remain nor are intended to remain beyond fifteen, and, in fact, often leave earlier. They never reach that stage in the course which is most fruitful and interesting, and the organisation of the work of the schools is hampered by the late age of their entry and the short duration of their school-life.

Coming now to the problem of the curriculum, we observe that seven subjects are deemed "cardinal," viz., English, at least one other language, geography, history, mathematics, science, and drawing. All these must be included in the curriculum of the main portion of the school, and besides these, singing, handwork, and physical exercises, whilst in girls' schools domestic subjects must be added. In making this long enumeration of subjects the Board is not unmindful of the facts recounted in our remarks last month on "the congested curriculum":—

The Board are well aware of the difficulty experienced in finding sufficient time for all the subjects of instruction, and there is no doubt that under modern conditions the problem of the time-table has become increasingly complicated. This is very apparent if a comparison is made between the scope of the work required of a typical present-day school and of one of a generation ago. The difficulty is not directly caused by the regulations, although their formulation has necessarily tended to focus attention upon it. It is due, in part, to the fact that the progress of knowledge during the last century has involved the introduction of new subjects, and in part, to the recognition that the activities of the school are incomplete unless provision is made for training in such arts as singing, drawing, and manual work and for the promotion of the physical development of the pupils. At least, in the case of boys' schools, there does not seem to be any one of the subjects prescribed by the regulations the exclusion of which from the curriculum would meet with any general approval.

Nor does the Board forget that this difficulty is even more keenly felt in girls' than in boys' schools:—

This is due not only to the shorter time actually spent in school and the larger claims made on the time of girls in day schools by the circumstances and conditions of their home life, but also to the relatively greater importance attached to music and art, and to the inclusion of those domestic subjects which cannot properly be omitted from the education of girls, even of those who, from choice or necessity, seek to put themselves in a position of economic independence. It is also sometimes due to the inclusion of two foreign languages in the curriculum of girls whose secondary education is, as a matter of fact, limited to the years twelve to sixteen, and who come to school indifferently prepared. In this connection it may also be noted that in girls' schools which meet only in the morning the efficiency of the work often suffers from the attempt to teach too many languages concurrently.

We are glad to find, however, that on this matter of the crowded time-table the memorandum does not stop short at a recital of the facts, and the expression of a pious hope that means may be found to overcome the difficulty. Instead of this, it proceeds to make definite suggestions, and with these suggestions we find ourselves on the whole in cordial sympathy. In quoting the following passage we take the liberty of printing certain parts in italics:—

In many schools much time is wasted owing to a misapprehension of the intention of the Regulations. The requirement as to the inclusion of certain specified subjects in the curriculum *does not imply that all pupils should study each of these subjects throughout the whole of their school course.* As is explained later, those pupils who remain at school long enough to proceed to advanced work will naturally discontinue some subjects in order to give special attention to others.

Even in the middle forms *there is room for much elasticity in the apportionment of time to each of the various subjects.* It is often found, for example, that schools give precisely the same amount of time to one subject throughout the whole of the school course. It is probable, however, that much better progress would often be made if in certain parts of the school the pupils were allowed to concentrate on certain subjects while giving correspondingly less attention to others. For instance, where a new foreign language is begun, it may with advantage be studied intensively. Again, in such groups of subjects as English and history, foreign languages, mathematics, and science, the *principle of compensation* might well be applied. This implies that the subject or subjects which thus temporarily receive diminished attention should in their turn be emphasised at another stage of the course.

It is obvious that these suggestions can only be satisfactorily met where the conditions in regard to the age and standard of attainment at entry are such as to enable pupils to pass up together through a suitably graded course of work. It is the absence of such conditions which is the real cause of many difficulties experienced in arranging a suitable time-table and which prevents the time available being used to the best advantage.

In the middle and higher forms time is often wasted by the recapitulation of quite elementary work which ought to have been mastered at an early stage; by the *absence of proper coordination between the syllabuses in different but related subjects, e.g. mathematics and science, English and history, science and geography;* and by the *inclusion in the syllabuses of much that is really unessential,* to the neglect of what is of capital importance.

The memorandum insists that the phrase "secondary-school curriculum" is not a phrase of constant meaning, but that the curriculum must be adapted to the special circumstances of each particular case, *e.g., the size*

of the school, the previous education of the pupils, the nature of their home life, the length of time during which they will remain at school, and the occupations to which they will afterwards proceed. The special difficulties of small schools are dealt with as follows:—

In the smaller schools, and especially in small country grammar schools, this can only be done, if at all, in a very modified form. It is in these schools, which have often with inadequate funds and a small staff to provide for different types of pupils, that the difficulties of organisation are most serious. These difficulties are greatly increased by the attempt to introduce alternative courses of study, and there is a serious danger that in such schools the attempt to make special provision for the particular needs of each type of pupil may be carried too far. It is often wiser to limit the options allowed and to require all pupils up to the age of fifteen to pass through substantially the same course, with perhaps a single alternative as between two languages, even though this course would not be chosen for each individual if free selection were possible. The complicated organisation which results from a number of optional subjects makes a severe demand on the time and ability of the staff, and tends to produce relaxation of industry and discipline. The Board, therefore, will not accept alternative courses of study beyond those for which the school is able to make satisfactory provision.

The "principle of transference" from one school to another is emphasised at more than one point in the memorandum;—

In districts where there are several schools of similar type easily accessible, the work of special provision might well be apportioned among them. For example, one school might, *inter alia*, provide especially for a full course in modern languages, while in another more attention might be given to science and mathematics. This also applies to the choice of the foreign languages to be taught.

The special circumstances of the kind of school in which sixteen or seventeen is the normal leaving age, and in particular the vital differences between such a school and one in which school life is normally prolonged till eighteen or nineteen, are pointed out. In schools with the lower leaving age—

The scheme should be so arranged, and the subjects of instruction so chosen and treated, that the work will not be open to the criticism that it is merely the first stage of a school course which would not be completed until the age of eighteen or nineteen. This implies that the syllabus of work in the several subjects should be so drawn up as to have a certain completeness in themselves. The course in languages other than English should, for example, enable the pupils to read with facility some works of real literary value: that in mathematics or science should aim at giving them such a knowledge of methods and

results that they can appreciate the value and purpose of the work they have done. It is necessary to lay stress on this, because there is some danger that schools may attempt a programme so ambitious that it is impossible to carry it out effectively. This danger is enhanced when the examination adopted as the school leaving examination is one primarily designed to qualify for admission to a University. In particular it will often be wiser for many of the pupils not to attempt more than one foreign language. This is especially the case where it is desirable to give a large amount of time to science and mathematics. The literary training of many of the pupils will be better served by using the available time for thorough work in English and in one foreign language than by distributing it over a greater number of subjects. Schools with a low leaving age will, in short, do better if they aim at quite first-rate work within clearly defined limits than if they attempt a more ambitious scheme in imitation of schools which are able to give a full course extending over eight or nine years.

Not only should there be variety of curriculum as between school and school, but there will often also be differentiated courses within the same school. In schools where pupils normally enter not later than the age of ten, and where a considerable proportion remain till the age of eighteen or later, a common course is practicable up to the age of about fourteen, when bifurcation begins. Again, in another well-marked but sharply contrasted case, where practically all the pupils enter at the age of twelve, and come from the elementary schools, alternative courses should be established at the end of the first or second year, one leading to university entrance examinations, and the other often modified by a vocational bias. The great majority of the schools are, however, intermediate between these two types, for while some of their pupils enter at ten or earlier, others enter at about twelve from elementary schools.

Great difficulty is frequently experienced in organising the work of pupils between the ages of twelve and fourteen so as to meet effectively the needs both of those admitted at ten and of those admitted at twelve. Where the number of the latter is small, this difficulty is sometimes successfully overcome by temporarily grouping them in a special division, where they receive intensive teaching in new subjects, *e.g.*, French, Latin, mathematics other than arithmetic, in which some progress has already been made by the other pupils. It thus becomes possible to draft them, after a short interval, commonly of a term's duration, into the forms in which, but for the absence of the necessary grounding in these subjects, they would have been placed on admission.

In schools where a substantial number enter at both the earlier and the later age, it is sometimes possible to reclassify the pupils for a subject which has

already been begun by some and not by others, and thus to secure to all pupils alike the opportunity of making uninterrupted progress. Where this cannot be done it is often feasible to establish parallel forms, each exclusively composed of one or other of the two types, and to postpone fusion until the late-comers have been enabled, by intensive teaching in new subjects, to continue their work in these subjects on equal terms with pupils who have been longer in the school.

The memorandum gives specific and fairly detailed instructions as to the curricula to be followed in the "junior school," the "middle or main portion of the school," and the "upper school."

In the junior school, including the forms (if any) in which the age of the children is between eight and twelve years, the curriculum must include English, arithmetic, history, geography, drawing, singing, and physical exercises. Handicraft and nature study are regarded as highly desirable, and may in any school be required. In girls' schools needlework must be begun at the age of ten. If the junior department is small, it may be desirable to omit a foreign language until the pupils join those who enter at a later age.

In the "main portion of the school," comprising generally those forms the average age of which is between twelve and sixteen, all the "cardinal subjects" mentioned above must be taught, but various concessions are made, in accordance with the principles already referred to, with the view of keeping the curriculum followed at any one time within reasonable bounds. Again, as regards languages other than English, not more than two should in general be begun before the age of fourteen; and the normal organisation should not provide for beginning two new languages in the same school year. Drawing must be included for two consecutive years, and practice in singing should be included, with instruction in the elements of music when the pupils have not already passed through a satisfactory course. But perhaps the most remarkable part of the provision made for this portion of the school is that special courses, designed to prepare the pupils for their future occupations in life—commercial, agricultural, or domestic—will in certain cases be accepted, where it appears that the provision of this vocational work in the curriculum will encourage the pupils to prolong their general education. It follows, to give an example, that a limited amount of time may be given even to type-writing, after the age of fifteen.

The memorandum finally deals with the upper school, where advanced work is done in classics, mathematics, and science, "modern humanistic studies," art, commercial and

secretarial subjects, and domestic subjects. Upon these specialised courses it will suffice to remark that the specific suggestions made tend to insist upon avoiding the evils of a too narrow specialisation within the limits of secondary-school life.

We have now placed before our readers the main lines of a document which on the whole we regard as of hopeful augury for secondary education. It is written in no spirit of dogmatism; the only uniformity it demands is a desirable uniformity in matters of broad principle; and it allows and, indeed, encourages experiment. We hail its appearance as a sign that at last the problem of the secondary-school curriculum as *an organised whole* is in this country being fairly looked in the face.

## REPORT OF AN INVESTIGATION INTO SPELLING.<sup>1</sup>

By MISS IDA SUDDARDS.

(In collaboration with other members of the Fielden School Staff—Miss Mitchell and Miss Matthias.)

**S**PELLING has always held an exalted place in both professional and lay opinion. In spite of the irrationalities of the English language, a mistake in orthography has been regarded as the mark of an illiterate man, and the energies of the schoolmaster have been devoted untiringly, at the expense of much time and effort, to meeting the popular demand. Spelling has accordingly ranked in importance with the three R's, and been given a corresponding prominence in the curriculum of the school. That such procedure might involve waste of time and energy is a criticism of only recent date. During the last twenty years investigators have directed their attention to the solution of the spelling problem; although the end in view has not yet been reached, valuable statistical evidence has been obtained which has helped to locate difficulties, and so yielded valuable results to psychology and pedagogy.

The method of investigation at the Fielden Demonstration School, Manchester, has not been to deal with large numbers, and so gather statistical evidence, but by close observation and the use of a few selected tests, to test the spelling capacity of children ages eight, nine, and ten, and in so doing to find if possible the point at which the spelling disease first develops, and the best means of coping with it.

For the purposes of this paper, spelling is defined as the reproduction from memory of certain arrangements of symbols to which convention has attached definite meaning for

<sup>1</sup> Paper read before the Educational Science Section of the British Association at Birmingham, September, 1913.

the common purpose of written intercourse. The good speller normally achieves success through constant practice in reading and writing, whereby correct mental images, visual, auditory, and motor, are obtained largely on the margin of attention. Practice in the correct writing of words implies in the first place imitation of a model. This involves many distinct psychological steps some of which have not yet been analysed. There is first a percept of the word; from the percept of the word in the act of writing certain memory images develop. These may include visual images of the word and of the letters composing it, auditory images of the sounds forming the word, motor images of the speech movements involved in pronouncing the word, and motor images of the hand movements involved in writing the various letter combinations.<sup>2</sup> Practice in writing develops all or some of these images, which later help recall, and so permit correct reproduction of the symbol by motor activity. The end in view is reached when the written symbol is produced automatically in the conventional spelling.

It is only necessary to be able to spell such words as we need to write, that is, spelling is only of importance in language teaching in so far as it has to do with the writing of language. The smaller the vocabulary, the smaller the chance of bad spelling. Many schools, especially some elementary schools, produce a great number of people who never spell badly because they use so few words. The sacrifice of ideas to formalism necessarily restricts growth of vocabulary, and pupils passing through such schools spell correctly because of the limited number of words they have the opportunity of spelling incorrectly; but these are badly educated people. Modern culture implies a wide experience in reading and writing, hence it follows that pupils must be allowed scope for reading and writing freely. But here is the crucial point; the greater the opportunities for the enlargement of experience, the more pronounced the spelling difficulty becomes. A child enters school with only one vocabulary, a "speaking" vocabulary, and that a limited one. The reading and writing vocabularies are added during the school career; of these three—(1) speaking; (2) reading; (3) writing—the growth of one and two far outstrips three, and in the attempt at a wider and more complete expression the habit of bad spelling is formed. *It is the differentiation of rate in the acquirement of these three vocabularies which is at bottom the cause of bad spelling.* To meet this difficulty, some schools place undue

emphasis on spelling. The pupils spend time and effort on lists of words and rules as a separate branch of study. But any such attempt at basing spelling on conscious processes fails in that it fixes attention on the mechanism of expression rather than on the thought to be expressed; to have to think how to spell a word hinders expression. The problem, then, is to ensure the same standard of accuracy, but by means which will not hinder development or waste time.

#### *Investigation of this Problem with Pupils Ages Eight to Ten.*

With this end in view, an investigation into the spelling ability of children eight to ten at the Fielden Demonstration School has recently been carried out. As before stated, the method was not to collect statistical evidence, but by close observation of these classes and by the use of a few selected tests to find if possible the point at which the "spelling disease" first shows itself, and having found this, to prescribe suitable treatment.

Class II was the first class tested. The average age of these children is eight-and-a-half. In this class reading and writing are based on the humanities, and the teaching of spelling is taken only in conjunction with these. Briefly, the method adopted is as follows:—Reading is taken from Readers containing the story round which the humanities are centred. Difficult words are written on the blackboard. The number of words which can be recognised in reading exceeds the number which can be reproduced in writing. The subject-matter of the pupils' writing is based upon what has been read in these books. The children compose their own version of the story, giving sentences orally and using words they have read in their books. These sentences are written on the blackboard by the teacher, and copied by the pupils into their own books. The same words often occur in different sentences, so that there is opportunity for seeing and writing words in various contexts. *The pupils see and write only the correct forms of words, and their written vocabulary is thus under the control of the teacher.*

To these children two tests were given. Forty typical words were selected which the children had read in their reading books and had seen written on the blackboard, but which they themselves had not written. These were indicated as isolated words, twenty being given at a time to avoid fatigue. Seventy-two per cent. of the words were correct. In the second test forty words were selected with which the children were quite familiar, having both read and written them several times;

<sup>2</sup> "Mental and Physical Life of School Children." (Peter Sandiford.)

90 per cent. of the words were correct. The results of these tests showed (1) that the general spelling ability of the class was good; (2) that those words which had been written several times were spelt best.

In Class III (average age nine) two tests of a similar nature were given. A much higher percentage of error was found in each case; only 53½ per cent. of the unpractised words were correct in the first test and 64 per cent. in the second.

In Class IV (average age ten) similar tests gave a still further increase in percentage error; 51 per cent. were correct in the first test, 60 per cent. in the second.

These results showed an obvious disparity between the spelling ability of Class II and Classes III and IV. With all three grades spelling had been taken incidentally with reading and writing. In each case the words selected for the test had been taken from the pupils' ordinary speaking and reading vocabularies. How, then, was this sudden break in spelling capacity to be accounted for? The answer to this inquiry we believe to have found from a consideration of the written work of the three classes. In Class II (as was previously pointed out) the pupils see and write only the correct form of familiar words. *There is no free composition*, and hence no opportunity for spelling incorrectly. The selection of the vocabulary is the children's own, but it is almost wholly under the control of the teacher.

In Class III the conditions change. Here the pupils are gaining many new experiences; the speaking and reading vocabularies are developing far more rapidly than the writing vocabulary. At the same time free composition is first begun, and in this attempt at individual expression the habit of incorrect spelling is formed. The teacher loses the full control of the children's vocabulary which he had in the previous class, and the spelling disease begins to show itself.

In Class IV, owing to the greater differentiation of rate between growth of writing vocabulary and that of the other two, the disease takes larger strides. There is greater scope for error with proportionately less possibility of control by the teacher.

As a result of this diagnosis certain reforms are being instituted:—

(1) It is clearly better to spend time in the forming of accurate spelling habits at the beginning than in the correction of wrong habits later. In the early stages pupils may be prevented from spelling inaccurately by never giving them the opportunity of doing so. Hence we now delay free composition so as to keep the pupil's written vocabulary

within the control of the teacher for a longer period. For the first few months in the year the nine-year-olds in Class III continue the combined work which was a feature of Class II. This does not necessarily mean the stifling of original effort; but the pupils express themselves freely only in oral composition.

(2) The transition to free written composition is made gradually, with strict oversight from the teacher. The pupils at first use small dictionaries, specially compiled for them by the class-teacher. Later an ordinary penny dictionary is found to meet their requirements. Pupils are constantly reminded of the need for correct spelling in any free writing which they undertake, and at the end of such lessons two or three of the most difficult words are noted, and a few minutes' drill taken on these. This drill consists in the discussion of the words (that is, their meanings, derivation, use in sentences), and the writing of them two or three times. Each pupil keeps his own note-book, where such words are entered. They are afterwards practised at home and tested next day.

In spite of these precautions, some errors still occur. The method of correction is based on a recent inquiry made by Mr. Stanley Wyatt at the Fielden Demonstration School to determine the relative value of methods employed in correcting spelling errors (*Journal of Experimental Pedagogy*). The investigation was carried out in the following manner:—(1) The tests employed were given to children of both sexes, varying in age from ten to twelve years. Two lists, A and B, each containing fifty words, formed the material for the experiment. The two lists were dictated to the children, who wrote them down. Their papers were afterwards collected. Three days later list B papers were returned to the children, the misspelt words having been crossed through and the correct forms written above. The children were then required to write these out three times. One week after the first test the same lists were again dictated. In the case of list A the children were kept in ignorance of their mistakes; in the case of list B they had corrected them. The amount of improvement found could then be attributed to the correction of the mistakes. In addition to the above, three other methods were tested in the same manner.

2. The incorrect words were underlined by the teacher, and then written correctly three times by the children.

3. The words selected were taken from a poem, and during the period between the first and second applications of the test the poem



was read to the children. The lists in this case were not returned.

4. The words were not corrected by the children, and lists were not returned.

The percentage improvement found in each case was as follows:—20·8 where the words had been obliterated and the correct form written above; 16·5 where the misspelt words had been underlined; 8·3 where words had later been read over by the children, but not corrected; 1·8 where there had been no correction.

The first method of correction is the one followed in the school; the misspelt words are actually obliterated and practice given in the writing of the correct symbol. The right form is thus brought to the focus of attention.

Such in brief outline is the procedure adopted as the result of the whole investigation. The aim in view throughout is prevention rather than correction, and to achieve this the chief means is to *keep the pupils' written vocabulary as long as possible within the teacher's control*. In this way their writing vocabulary is kept in line with the speaking and reading vocabularies. There is little opportunity for bad spelling, and meanwhile habit of good spelling is being formed.

For the average child we believe that the above measure for coping with the spelling disease in normal cases is sufficient. But in every class there are a few pupils for whom ordinary class teaching is not adequate. For these spelling is made more of an independent study, and special methods are devised to meet the needs of individual cases, taking time from other pursuits. Such cases, however, are not allowed to stop the normal progress of the class as a whole.

### MANUAL TRAINING IN THE SECONDARY SCHOOL.<sup>1</sup>

By T. S. USHERWOOD, B.Sc.

Head of Manual Training Department, Christ's Hospital.

THE appearance, since I promised to read a paper for this association, of the report of the consultative committee of the Board of Education on practical work in secondary schools, has made my task much lighter. It is now unnecessary for me to discuss at any length what is connoted by the term "manual training," or to insist on its unrivalled value as an educational lever. I can consequently omit the matter of the opening paragraphs of my paper and pass to what may be of greater interest, viz., a brief description of the aims and work of a manual training school, with

special reference to what we have attempted at Christ's Hospital. I have, further, rearranged the last part of my paper so as to save time; and, while asking your indulgence for what may seem mere repetition, hope that an account of personal experiences under special conditions may be of interest, and of some value, if only serving as a basis for discussion.

It is now just four years since a special school for manual training was opened at Christ's Hospital. Erected to the designs of Sir Aston Webb and Mr. Ingress Bell—while the designs themselves were conditioned by the suggestions and recommendations of Prof. Armstrong—the buildings are most commodious, and well suited to their purpose. The main building is 130 ft. long and 30 ft. wide. It consists of two storeys, each lofty and well lighted by windows on all sides. The ground floor is divided into two rooms; the smaller is fitted as a smithy; the larger serves for other branches of metal work and for woodwork. The first floor is divided similarly: the larger room is arranged for cardboard and paper work, and contains desks for mechanical drawing, while a portion, divided from the remainder by a low partition, is fitted for printing and bookbinding; the smaller room is reserved for such varied occupations as plumbing, gas-fitting, clay-throwing, and rough carpentry. Ample store room is provided on both floors, while a separate group of smaller buildings contains coal and coke bunkers, lavatories, wood-store, and a foundry.

The school time-table now in force provides that the two lowest "blocks" on both classical and modern sides attend the manual training school for practically two double periods a week, i.e., for about three hours. This means that handwork forms part of the normal curriculum for six forms on the classical and for eight forms on the modern side. The four top forms in the preparatory school also attend for one hour a week. Thus, nearly every boy entering the school does a certain amount of handwork; but, on the classical side, rapid promotion and the pressure of literary work under the influence of the older universities, makes the total time spent at practical work, in my opinion, inadequate. Facilities for various kinds of work are provided in the "manual" school, while clay-modelling and design are treated concurrently in the art school.

It is interesting to note that there is the closest association between the art and the manual schools. Designs for castings, for *repoussé*, for carvings, &c., are developed, modelled in clay, or cast in plaster in the one, and carried out in wood or metal in the

<sup>1</sup> Paper read before the Educational Science Section of the British Association at Birmingham, September, 1913.

other; an arrangement which has been most successful. Since the opening of the school there has been marked and progressive development towards freedom, and an effort has been made to provide such varied occupations as should ensure connected and sustained mental activity. While I have insisted that an instructor's motive should be purely educational, we have endeavoured to recognise the vocational motive in the boys, in that they have been encouraged to construct things in which they took a real interest and which were of use when made. We have, in short, attempted to realise both the *substantive* and the *instrumental* worth of manual training.

Details may help to explain what I mean by "progressive development towards freedom." My staff consists of four instructors and a caretaker, who, having been a fitter, can assist in some of the work. Of the instructors, one has had shop training as an engineer; one is a skilled carpenter and joiner, who has had experience of the building trades; one is a skilled smith, who has had sea-going experience as an engineer; and the fourth is a joiner, who had some teaching experience before he joined us. As a staff, we are capable of dealing simultaneously with about eighty boys; but in general, only two forms, *i.e.*, from fifty-five to sixty-five boys, come to the school at the same time, a fact which profoundly modifies the extent, variety, and development of our work, while certain periods are left free for the preparation of notes and materials: it is also possible to arrange for voluntary work out of school hours on several afternoons.

Initially our scheme included work in cardboard, wood, and metal, and was quite formal. We had a cut-and-dried routine of models, and laid stress on the importance of being able to use certain tools properly, without paying much regard to the interests of individual boys. But the cramping effects of a stereotyped system were soon obvious, and my instructors felt, with me, that we could scarcely justify our existence in the school—at any rate to ourselves—under the conditions we had voluntarily assumed. We had many discussions on matters of principle: we met on half-holidays, and I would give and hear experimental lessons, or suggest passages from recognised authorities for consideration; and eventually we decided to "scrap" our cast-iron scheme, and to introduce such modifications as were suggested by the realisation that, in the first place, we ought to allow the fullest possible scope for expressional work and individuality; that, in the second place, it was desirable to undertake experimental work whenever possible; and finally, as a natural

corollary to the other conditions, that we were not to "instruct," except as a last resort. The decision entailed little change in the general range and sequence of the work, but brought about what seems to me to be practically a revolution in the *application of the methods* of manual training.

Briefly, the change may be summarised thus:—Our original aim was to develop dexterity. But it is impossible to undertake the organisation of any form of manual training without learning to appreciate its "instrumental" value, without seeing that such work can be made a direct and far-reaching influence in intellectual development, provided that mere manual skill is regarded as subordinate to mental versatility. Now, in the limit, practically the only operations to be considered are "tooling" and "fitting." The first, the use of shaping tools only, is valuable where intuition is allowed scope: it is undoubtedly, in most cases, regarded as *the* vehicle of motor education. But "construction," while involving an appreciable amount of manual dexterity, calls for far greater mental adaptiveness: and it is only through construction that handwork makes its full appeal to the natural instincts, and will best serve as a rational basis for correlation in school work. It appeared, then, desirable to adopt those forms of training which most require the mind to act in divers ways, to reduce the number of models requiring skill and elaborate tooling, and to increase those requiring constructive ability and affording scope for originality—at any rate, during the earlier stages.

Apart from other all-important considerations, the plan we adopted appealed to the average boy's strongest instincts and interests. He wants to *make something*: he does not want to learn carpenters' work or smithing, except as means to an end: he does not realise the importance of manual dexterity: he does not want "to develop his mental powers by motor education." These, however, are the indirect results of allowing him to do something in which he takes a vivid interest, and which brings him into close relationship with an important aspect of his environment, hitherto practically neglected. If, indeed, learning is self-realisation, the form of manual training I advocate is learning *in excelsis*.

Our scheme, if so fluid an arrangement can be dignified by the title, is now somewhat as follows. First, there is carton work for the beginners—in most cases boys of ten or eleven from the preparatory school; as far as possible they have a free hand, but the first object or two made by any group is usually the same for all, in order to reduce the time otherwise occupied in giving those directions

which are absolutely necessary, but which must be a minimum even in these stages if the work is approached in the right spirit: these common models, too, and the methods of treatment, are varied from group to group, so that there may be no danger of the work becoming stereotyped—a distinct danger, not only because the best teacher loses “grip” if he works from a rigid scheme, but also because in routine work he may be tempted to short-circuit that thought and appreciation which is education. The value of the practical, first-hand, working-knowledge of elementary plane and solid geometry, acquired in this kind of work, will be appreciated. There is little doubt that, both on the grounds of rational genesis and logical development, it is an improvement on formal practical geometry. Since “usefulness” makes the strongest appeal to the beginner, it would seem that mechanical drawing associated with such work might have a far-reaching influence in school mathematics.

It was in woodwork, however, that the change was most marked. I have said that, at the outset, our course erred on the side of formalism, and included those traditional models and exercises which were proposed in the early days, when tools were introduced in what was fondly supposed to be a logical order, when *content* was sacrificed to *form*, owing to the influence of what Prof. Welton calls an “exaggeratedly intellectualistic adult psychology.” In common with most schools we had “exercises”; all, no doubt, indispensable in vocational or technical work; but all too formal to be desirable in an educational scheme. The course was based frankly on what had been done in the past, and we aimed at “working through” a series of “models.” But the present system introduces woodwork in what I claim to be a more logical, as it is certainly a more interesting, way. In THE SCHOOL WORLD (vol. xiii., November and December, 1911) I gave a brief account of our work, which may be described as the application of the *research method* to manual work; which—starting with the assumption that labour, apart from its justification by some useful purpose, must seem almost degrading—relies upon the fact that it is the utilitarian aspect which makes the most complete appeal to a boy’s mind, while most of the old-fashioned exercises and models were apparently useless. Objects like packing cases, stools, troughs, rabbit-hutches, hen-coops, dog-kennels, garden seats, steps, rough sheds and the like—objects which may be made on *experimental lines*, the manufacture of which may be freed from technical refinements with-

out impairing their reality and utility, and which may be made in the rough-and-ready way appropriate to a new community—appeal in the strongest possible way not only to the constructive instinct, but also to social motives; while they involve initiative, judgment, memory, observation, and resource, and call for the keenest concentration, developing body and mind together. Since the research method is used throughout, the teachers are *not so much instructors as co-investigators*. Drill and examples are eliminated from these stages, and postponed until they appeal. In fact, progress is on historical lines; while, since the inventional method is capable of endless modification and expansion, there is but little danger of that crystallisation of form which means a limited scope.

To illustrate the method, consider the case of a group of boys making, say, a rabbit-hutch. To begin with, each boy would be asked to embody his idea of what was desirable in a freehand sketch: the sketches are compared, and the essential principles evolved by question and suggestion—not stated didactically. The size is then decided, and the necessary framework analysed into its components, when the boys are asked to show by other sketches how they propose to unite these parts. Every suggestion is tested experimentally, and the most suitable is selected. Alternatively, various designs may be carried out by different groups simultaneously, so as to make use of the incentive of competition. Working drawings of the frame are then made, and the frame is constructed, with modifications from the original design where necessary or advisable. Next, the boards enclosing the skeleton are marked out, fitted, and fixed in position. Finally the doors are made—still on the same experimental lines—and hung, the hinges being of leather, brass wire or ordinary butts, as may be convenient. Throughout there are possibilities for scientific investigation, and a broad basis for rational correlations. Experiments are made on tools; on the holding power of nails, screws, and glue; on the strengths of various kinds of wood when employed in different ways; on the mechanical principles involved in bracing; on economical treatment. The consideration that the hutch is to be exposed suggests experiments on the weathering of timber, and on the effects of treatment with tar, paint, &c. These and other investigations naturally suggest themselves, and prove most interesting to the boys. Sometimes a hint may be necessary; but generally suggestions are so freely made, and are so *à propos*, that the real difficulty is selection. This brief indication of method—from which

I have omitted all details lest I be accused of attempting to replace one routine by another—may show how woodwork on inventional lines develops initiative and resourcefulness while creating the atmosphere requisite for scientific activity.

After two or three terms—say, by the time our average boy is about thirteen—woodwork is followed by metalwork on similar lines. The boys make letter-boxes, fenders, coal-scuttles, &c., in sheet-iron; scoops, funnels, pails and water-cans in tin-plate; or they forge objects like pokers, shovels, tongs, and trowels. The sheet-iron work is not highly finished, but ingenuity is required for correct bending and riveting: the tin-plate work involves soldering: in the forge, good shape and design are regarded as more important than accurate dimensions, and the work involves bending, drawing-down, and upsetting. A fairly advanced knowledge of geometry is essential for some of the work, and the course revives interests aroused in the first term, but perhaps flagging after the excitements of rough carpentry. In these elementary stages of metalwork are laid incidentally the foundations for a scientific comparison of the properties and behaviour of materials even more important nowadays than wood. There is no doubt that the forms of handwork which concerned themselves exclusively with a single medium were unsatisfactory, and it is evidently desirable that boys should have the opportunity of working with as many different media as possible. Originally, no doubt, woodwork alone was taught, because the cost of other developments was imagined to be prohibitive; but the capital and maintenance cost of such elementary metalwork as I have suggested is quite small; and, even were it thrice as great, the course is well worth establishing.

After this elementary course of work, which does not require delicate manipulation, exercises involving more skill are logical, and perhaps boys may be allowed to choose between wood and metalwork for future developments. But the field available for exploitation is far from being exhausted: pottery work, building, printing, bookbinding, plumbing, *repoussé* work and other occupations may be utilised, and we have attempted most of them at Christ's Hospital, although scarcely on the scale I could wish. All, if followed on research lines, develop the imagination and make boys observant and thoughtful to a degree unapproached by any other form of work. The recipe is Carlyle's. Give boys, he says, a training in practicality.

In the preceding paragraphs I have criticised, incidentally, the apparent trend of hand-

work schemes towards that formalism which—in the words of Francis Thompson—is the “repression of vitality.” That I have not exaggerated the tendency is clear from the existence of well-defined “schemes” of work, and of text-books of various kinds. With your permission I will read a short extract from a class-book recently published. The book is for pupils' use, and the preface states that “it has been compiled to give the pupils a keen interest in manual training.” Later we read: “As all instruction has one main object—the cultivation of the intelligence—so is manual instruction intended, by the aid of a constructive course of training, to develop the habit of intelligent observation”—one of the things which cannot be learnt from books! There follows a suggested scheme of correlated handwork still, presumably, for the pupils' consideration. To each model we have a tabulated statement of the aim of the drawing lesson and the aim of the woodwork lesson, coupled with parallel lessons in geometry, arithmetic, composition, geography, history, English (in poetical and other references to trees and timber), &c., to say nothing of lessons on the theory of tools. One can only wonder at the omission of “calisthenics and the use of the globes”! There is, indeed, justification for the “snowdrop” story.

Conceivably, such books are necessary for some teachers; but, even so, it is deplorable. Their damning tendency to limit scope by attempting to impose uniformity, whether of matter or method, can be imagined. They foster the current impression that handwork means carpentry, and partly account for the prevalence of stereotyped models. Naturally their influence is greatest on the weakest type of instructor: the man who discourses to his class on the collateral effects of handwork; who asks for essays on “Why do I do woodwork?” and coaches his boys in the formal answer, “Because it makes me neat and accurate, helps me to think, and so on”: or the man who is more concerned with the finished product than with the mental processes involved in production, and fails to realise the *educational* aspects of his subject. It will perhaps scarcely be credited that I once heard an instructor say to a class of little boys: “Now lads, you must remember not only the physiological, but also the psychological effects of this work.”

Apart from such evidence and the effect of tradition, illustrated by the fact that in school after school practically the same invariable series of models will be found, it must be remembered that the usual scheme is hypermethodic, and adult both in conception

and development. Surely any series of works which expresses a boy's individuality, and illustrates his own growth and sense of responsibility, is better than the most systematic and elaborate group of models based on exterior suggestion?

I turn now to what may be called the "staff" aspect of manual training. We, who are responsible for this recent development of secondary-school work, have to justify our claims to consideration, and it is certain that our aims and work are almost entirely misunderstood by teachers, particularly by those responsible for the literary side of school work. In the opinion of the average teacher of classics, handwork is quite unnecessary for the boy of ordinary intelligence. The attitude is illuminated by the dictum of a colleague that "no brains are required for manual work." A misconception undoubtedly exists: it leads to disparaging criticism of the manual school, to the allotment of a disproportionate amount of time to purely literary studies, and is sometimes reflected in the attitude of the older boys. The teachers of handwork and kindred "practical" subjects must have some literary qualifications, and, to this extent, can appreciate the importance of literary studies in education. But the converse is not true. How can we ensure appreciation of all that is connoted by "a construction" by men who have never constructed anything but sentences, who have never used any tool but the razor? We cannot expect them to admit, with Prof. Welton, that "an education worthy of the name must call forth every class of interests, and must provide suitable material for its exercise . . . to concentrate in boyhood and youth on some *one special field*, in which one class of interests may work, is utterly indefensible." Or, if the admission be made, their "every" excludes all that we maintain to be vital, and for them, "the classics" is not "one special field," but a liberal education itself. I confess the problem is beyond me. I do not see how we are to act so that the "Manual Training School" may be regarded as really part of the educational system, and not merely as the carpenter's shop. In this connection, too, I should like to deal with the question of "University" influence, but time forbids.

It appears, then, that suggestions for the improvement and development of handwork can only be counsels of perfection, while those responsible for the organisation of so many of our secondary schools are obsessed by tradition, while there is no statesmanlike adjustment of the balance of studies. The argument of an "overcrowded curriculum" means no-

thing. Either the work is worth doing, or it is not; there is no *via media*. Admission of its desirability, the mere blessing of authorities, is valueless: but I hesitate to recommend coercive measures—freedom, if real, is even more important than handwork!

It is possible that the slow growth and development of this work in secondary schools is conditioned by the difficulty of obtaining suitable teachers. Broadly speaking, two classes are available.

On one hand, we have the man who has studied the theory of "motor" education, who can quote chapter and verse in justification of its instrumental value, but who is, at least, not an *expert* in practice. His technical skill, under present conditions, is almost inevitably slight and amateurish; his lack of real and broad experience generally confines his lessons to the narrow groove in which he himself sought tuition, and in which his inexperience is least obvious. It is only rarely that this type of teacher can give his work that verisimilitude which makes the strongest appeal: his interests are too theoretical. On the other hand, we have the skilled mechanic who has taken up teaching work: thoroughly efficient in the practice of his craft, but shaky in theory and, initially, at any rate, incapable of doing justice to the scientific developments of the work. In but few cases, I imagine, is the latter fitted by education and social standing to take that place on the staff which the importance of his work requires: he is not a member of common room, and his work in the school suffers. The difficulty is really social, and must eventually disappear with adequate recognition of the work itself. Even as things are, it decreases in any particular case, as the mechanic in question, by continual practice in teaching and careful study, acquires sufficient knowledge of the *genus* "boy." Personally, I prefer the man of real "practical" ability to one who has merely dabbled in "handwork" in order to teach it. The former does good work (if his class is kept small), under supervision; and he would do better if his status in the school were improved: the latter lacks the essential grip of practicality.

For the future supply of instructors we must have men who can give effect to both the substantive and instrumental aspects of manual training: a specially trained class, socially and intellectually qualified to meet their colleagues on equal terms, endowed with the true spirit of craftsmanship, and having that adaptiveness and facility which is only acquired under the competitive conditions of actual occupation.

## THE EDUCATIONAL VALUE OF MUSEUMS.<sup>1</sup>

By JOSEPH A. CLUBB, D.Sc.

Curator of Museums to the Corporation of Liverpool.

THE majority of our public museums are "general" museums, intended for the preservation of suitable objects, and for rendering them useful for instruction. Most of them have now emerged from being mere "curiosity collections," and many are recognised as important factors in education. But taking the museums of this country as a whole, far too little use is made of them as ordinary instruments of education.

In a general sense a museum should be a popular educator. It should provide instruction for all classes and for all ages, and just as the departmental museums of universities are indispensable instruments of scientific teaching and research, so public museums should become the recognised and necessary instruments of popular education. It is rightly claimed for such institutions that the two primary functions should be (a) the diffusion of instruction among the masses of the people, and (b) to afford every possible means to the scientific student of examining and studying the specimens which are contained in the collections.

It is not surprising that, with the ever-widening field of human knowledge, the branches into which museum collections are divided have become very numerous. Usually these collections and departments are kept entirely distinct from one another. To the scientific student this may not be a serious difficulty, and for his purpose, probably, departmental collections are not only desirable, but necessary. But to the average visitor this multiplicity of departments is a source rather of bewilderment than instruction, and perhaps the chief reason why so much of educational value is lost in museums is because there is usually no comprehensive scheme which will link up and demonstrate intelligently the inter-relation of these various departments, and the place each occupies among the purposes of life.

The Liverpool Museum has many such departments, and we are at present engaged on a scheme which it is hoped will, at least to some extent, fulfil these requirements. The main (entrance) hall of the museum is being devoted to a collection designed to suggest a connected view of the world in which we live. The endeavour is being made of arranging the exhibits in this collection so that the cases

will form consecutive chapters in an epitome of the world's history, so as to suggest the sequence of events leading up to man and his civilisation. The series of cases will illustrate (by diagrams, models, or specimens):—

A. The earth in relation to the solar system, and the theories as to its origin (astronomical).

B. The surface of the earth (physical and geographical).

C. The crust of the earth (geological).

D. The life on the earth and its evolution (biological).

E. The physical development of man (physical anthropology).

F. The mental evolution of man (social anthropology).

The wall-cases it is proposed to utilise for the purpose of demonstrating that man in his civilisation does not invent anything off-hand, but by a very slow process of evolution proceeds from the simple to the more complex. It is suggested that these typical cases should contain specimens illustrating, among others, (1) the development of printing; (2) the development of weaving (through plaiting and matting to loom-weaving); (3) the evolution of the modern grand piano from the primitive stringed bow; and (4) the evolution of various kinds of tools. As the scheme has been described in detail in the *Museums' Journal* (vol. xi., 1912), it is not necessary to elaborate it here. It will be sufficient to say that such a collection can be made to embrace all departments, so as to link them together—illustrate their inter-relation—and in addition, by placing conspicuously in the respective cases references to where in the museum these sections are dealt with in greater detail, it can be made to serve as an index to the whole of the museum collections.

A great deal of the educational value of a museum collection doubtless depends on the method of arrangement and the character of its labels. For a public museum I am a great believer in what may be called the "comparative" method of exhibiting specimens, so that the exhibits tell a connected story, and the observer can make contrasts, note points of difference, recognise points of resemblance, have his interest stimulated so that he wants to know the "why" and the "wherefore" of what he is looking at. A case illustrating the modifications of the beaks of birds, with labels suggesting the reasons thereof, or a case demonstrating the evolution of the art of printing, are far more educational than would be cases of birds even of the brightest plumage, or one full of the most up-to-date typewriters. Labelling, again, is perhaps the most difficult of a curator's duties. To write

<sup>1</sup> Paper read before a joint meeting of the Sections of Educational Science and Anthropology of the British Association at Birmingham, September, 1913.

in concise and simple language is not by any means easy. They must not be long, otherwise they will not be read, and they must be so simple that children may understand. In fact it is an excellent rule to write labels as if written for children, for they cannot be too simple for the average public museum visitor.

There is no doubt but that the provision of suitable and capable *guides* in our large museums, for the purpose of giving demonstrations at stated periods, is a departure which is calculated to increase greatly the educational use of museums. However excellent the arrangement, and however excellent the labelling, it is comparatively only a small percentage of the visitors who read the labels. One of the greatest advantages derived from such guide demonstrations is that the attention of visitors is concentrated, and their observations are not allowed to cover too wide a field. The natural tendency of all visitors to museums is to do too much. They try to see everything, with the result that they see nothing, or at least understand nothing. In the past, in some museums, the curators and members of the staff have undertaken a considerable amount of lecture work, but from practical experience I know that it cannot be done by them in a systematic manner. The staff of museums, at least museums in this country, is too small to draw upon for this work, and even if it were not so, it interferes too much with other museum duties. I therefore am of opinion that it will be necessary to appoint guides who can devote the whole of their time to this duty. Thanks mainly to the public-spirited action of Lord Sudeley, this important matter has been brought prominently to the front during the last few years, and the experiment has been tried with the greatest success in certain museums. I had the pleasure of hearing, at the Museums Association Conference, the official guides of the British Museum, Mr. C. W. Hallett and Mr. J. H. Leonard, relate their experience of this work, and I had my views confirmed, and was more than satisfied as to its great importance.

That museums should play an important part in elementary and secondary education will, I think, be admitted. In the presence of so many professional educationists, I must speak with great circumspection on this subject; but, as an ordinary layman, I do think that in the present system of education of the young as generally practised—there are, of course, many exceptions—advantage is not taken of all the avenues to the brain, with which an ordinary child is endowed. Appeal

is often made to the understanding through generally only one, or at most two, senses, with the partial or entire neglect of the others. Memory, the development of which is perhaps most aimed at, is usually appealed to only through the ear, by the constant repetition of the same thing. Whereas, I venture to say, the better method, and certainly the scientific method, would be by an association of sensations, not conveyed by one avenue only, but by several, acting together and presenting to the mind, by various senses, the image or impression required.

The importance of the hand in mental training is at last recognised by educationists, and nowadays we hear on all sides of the importance of manual work in education. To the scientific man this occasions no surprise. Men of science have long recognised that the freeing of the fore-limb when man's ancestors first assumed the erect position, gave the hands a chance worthy of their potentialities. Indeed, many distinguished anatomists consider that the numberless possibilities offered to man's hand, and especially to his thumb, by the assumption of the erect attitude, must be regarded as one of the most important factors in the evolution and education of the human brain; and the same instrument that has done so much for the race will also do for the individual.

The faculty which under our present system of education is least trained is that of observation; but none is of greater value, and none is deserving of more careful attention. Most educationists recognise the importance of this in mental development, but, while accurate observation is the foundation of all original scientific work, comparatively little is done to develop the habit in the young. Their eyes are holden that they can see nothing, save book print.

Here then is where the great educational value of a museum in elementary teaching comes in. Museum lessons to school children are not unknown in this country, but usually they are not carried on systematically as part of our educational methods, and are often intended rather for amusement than for serious instruction. But even such lessons are of value—the child is taught to observe, and how to distinguish points of difference and to recognise points of resemblance. They are compelled to employ their own eyes, and not to depend on those of others. The canoes, weapons, implements, and house-gods of primitive times and primitive peoples, as seen in a museum, and explained by a competent teacher, will make a far more vivid impression on the pupil, and

will give more accurate ideas than a library of illustrated books. The same applies to the natural productions of our own and of foreign countries—to the ordinary beasts, birds, and fishes. Better methods of taxidermy, and improved methods of arrangement, have done much to make the natural history departments of up-to-date museums most valuable educational aids.

In addition to these general educational advantages, many museums have provided special facilities to encourage visits of school classes under the charge of teachers—have formed school loan collections, from which museum specimens are lent to schools for lessons, and in many other ways have held out inducements so as to increase, in this direction, the educational use of museums. But generally speaking the response has been small.

For nearly thirty years (since 1884) special efforts have been made by the Museums Committee in Liverpool to make the natural history and other collections of the city of direct educational value to the children attending the elementary schools—public and private—but in a report on this work which I submitted to my Committee I find that during last year only 350 applications were made for loans from the school collections, and only some 2500 school children visited the museums under the charge of teachers during school hours (time spent in a museum is now recognised as school attendance), and this in a city containing elementary school accommodation for 132,000 scholars. It may be that the school curriculum is already overloaded, but even if this is so, and revision is not immediately possible, an *alteration of method* might enable the teacher to make use of museum collections.

We have an example in Liverpool, where an enterprising master consulted me in reference to a series of lessons he proposed to give on geography, in which he desired to test the value of illustrating the geography of the continent of Africa by bringing the pupils into direct contact with the actual objects, illustrative of the people and natural history of that continent. Four lessons were given in the Museum Lecture Hall. The subjects were:—

- (1) The daily life of the African native, west and south.
- (2) Life among the Moorish tribes.
- (3) Life in ancient Egypt.
- (4) African animals and birds.

Such objects as could be conveniently provided were taken to the lecture hall for the purpose of each lesson, and any illustrative

specimens on exhibition in the cases were visited by the class, at the close of each lecture. The result was excellent, and the master, in his own words, says: "The observation of the actual object, seeing it in use, taking in its details by sketching it, have proved themselves most efficient means of developing the child's interest and desire to know more." He also adds: "It is doubtless possible to develop extensively along these lines, to the great advantage of the pupil who is anxious to get away from words on to things."

But these efforts are only spasmodic and isolated, and if public museums are to occupy the position in elementary and secondary education which they deserve, the education authorities must give formal recognition, by direct cooperation with museum curators. Museum committees and curators are willing to do their part, and will sympathetically consider any scheme which will help in this important work. I do not think "children's museums," for which I know a great deal may be said, are really necessary. The improved methods of arrangement and labelling, already referred to, should be sufficient, for what will educate the ordinary visitor will educate the child, under proper tuition. The question of the tuition of school-children in museums is an important one, and the people naturally best fitted for the work are undoubtedly the school-teachers. Here again one may be met by the already-mentioned "overloaded" curriculum, and that teachers cannot be expected to extend their studies to this extent. But would the increased labour for them be very great? I do not think it would, provided your museum is an up-to-date one, with good arrangement and good labelling. The museum guides also might be pressed into service by giving courses of museum demonstrations to school teachers only.

I have dealt in greater detail on this aspect of increasing the educational use of museums, because I feel that it is in this direction that the greatest work remains to be done. It may raise the whole question of the present method of teaching in elementary schools, of which, I know, there are many critics, but upon which I am not able or willing to speak; but that there are obvious advantages in educating by "things" not "words" is admitted. It is essentially a more natural way of acquiring knowledge—it is calculated to tend to more practical and less "bookish" ideas—and more than all, the recipient becomes not only a willing, but an eager assistant in his or her own education.



## THE REORGANISATION OF THE LONDON EVENING SCHOOLS.

THE Education Committee of the London County Council has at last taken seriously in hand the reorganisation and the improvement of their evening schools. In certain respects these schools have long suffered by comparison with similar institutions in some of the larger provincial towns. The principal weaknesses of the London evening schools in the past have been the unsatisfactory attendance and the absence of any real connection between them and the institutions doing more advanced work.

The key to any decisive advance in evening educational work in London, of whatever grade, lies in the improvement of the schools, formerly called "evening continuation schools," dealing with the further education of boys and girls during the crucial years between fourteen and seventeen. Notwithstanding a few brilliant exceptions to the contrary, there has been in general, up to the present, very little "grip," or even attractiveness, in the work of these schools. The name even of this group of schools was in itself unfortunate. Teachers and pupils were tired after their day's work, the aims of the schools were indefinite, and the work done was in general desultory and unsatisfactory. As a natural result, the attendance of the pupils was often irregular. In a report to the Council on February 25th, 1913, it was stated that "nearly one-third of the evening-school students, 40,000 out of 130,000 are ineffective students, through irregular attendance."

The Education Committee of the Council has now put into operation, commencing with the opening of the present session on September 22nd, 1913, a new and striking scheme for their evening schools, framed on broad, generous educational lines. There is every reason to hope that as a result of the changes thus introduced, the whole of the evening educational work of London will be very beneficially influenced.

The essential features of the new system may be briefly stated. The schools, now termed "institutes," will be more definitely specialised than before. "Junior" institutes will be closely connected with institutions doing higher work. More attention will be given throughout to the teaching of the humanities and to the development of social life and activities within the schools. Advisory committees will be formed for each institute of employers and other persons likely to be specially interested. A considerable proportion of the heads

of the schools will devote either all or half their time to their evening work.

CLASSIFICATION OF THE SCHOOLS OR "INSTITUTES."—This has been arranged broadly as follows:—(a) Advanced commercial institutes; (b) Junior commercial institutes; (c) Junior technical institutes; (d) Women's institutes; (e) General institutes; (f) Institutes of a non-vocational type for students over eighteen; (g) Institutes for the deaf; (h) Special classes, such as those for policemen, railway employees, and post office boy messengers.

COORDINATION WITH HIGHER INSTITUTIONS.—Commercial students may pass from the Junior Commercial Institute through the "advanced" institute to the School of Economics, or to the City of London College, the two institutions just named being regarded as the summit of the evening system of commercial schools. Similarly, the evening classes in the University colleges, the polytechnics, technical institutes, and the schools of art, will provide for the student who has passed successfully through the junior technical institute. Subject to certain minor exceptions, the "advanced" institutes, commercial or scientific, will not admit students under seventeen years of age. The junior institutions will not retain students over eighteen years of age except those attending certain non-vocational classes. At first no age-limits will, however, be placed upon the students at the women's institutes. Standing conferences will be formed consisting of the principals, heads of departments, and responsible teachers of the junior and advanced institutions in a given locality, in order to cement the relationships between the various types of schools. The principals, or heads of departments, of the higher institutions will have the right of visiting the local junior institutes in an advisory capacity, to offer advice upon the appointment of the assistant staff, and on the framing of courses and syllabuses. Arrangements may be made for the loan of apparatus from the higher institution, and classes from the junior technical institutes may visit occasionally the local polytechnic or technical institute in order to become acquainted with more advanced apparatus and appliances.

THE TEACHING OF THE HUMANITIES IN THE SCHOOLS.—The Education Committee rightly attaches great importance to the wider and better teaching of literary subjects in all types of their evening schools. In order to further this, three memoranda have recently been issued, signed by Mr. Blair, the Education Officer of the Council, dealing respectively with the teaching of English in evening institutes generally, the teaching of humane sub-

jects in women's institutes, and the teaching of foreign languages principally in the senior commercial institutes. In the first of these, the importance of developing new methods of instruction is emphasised. "The first and last task of the teacher is to arouse and hold the interest of the students. The degree to which the institute library is used will serve as an index to the influence of the teacher of English." The use of the daily or weekly illustrated papers as text-books is suggested for classes of the poorest literary attainments. From these papers the teacher may find the subjects for lessons in geography and history. Classes of higher attainments would find much interesting matter in the weekly edition of *The Times*. Lessons should be given in grammar and composition, and opportunities afforded for dramatic reading and recitation. At some of the more advanced centres it may be found practicable to hold some of the "cycle" literature courses, or other specialised English teaching. In the memorandum on the teaching of humane subjects in women's institutes, suggestions are given for courses arranged "to stimulate interest in the events of the outside world, and understanding of how these affect directly or indirectly the lives of the students. The value of the social legislation to the people is enhanced by the housewife's understanding of its use." Interesting outline syllabuses are given in industrial history, social history, the laws affecting the housewife, and how they are enforced, geography, literature, art, music, and arithmetic of everyday life. The memorandum on the teaching of foreign languages urges the need for "closer coordination and cooperation among the teachers," for differentiation of the work, where possible, according to the individual needs of the pupils, for a great uniformity of text-books and methods, and for the formation of French and German clubs and circles in the institutes.

The Education Committee anticipated that in the coming session, as a result of the closing of certain centres of evening-school work, and of the adoption of the "group-course" system for pupils under eighteen years of age, there would probably be a fall in the number of evening students, from 130,000 to 100,000. Very wisely, steps were taken this year for the first time to secure the maximum publicity of the work of the evening schools by more extended advertising, by appeals to employers, and by arousing public interest through the daily Press. As a result, the diminution in the number of evening students will probably be much less than was anticipated. In the opening week of the current session 72,440 students enrolled, as compared with 81,089 last year.

This relatively slight falling off must be very gratifying to the Education Committee and to Mr. Blair, to whom much of the credit of the reforms is due. Unquestionably the scheme marks a new era in evening education in London.

## THE SCHOOL AND THE MUSEUM.<sup>1</sup>

By A. R. HORWOOD.

IT is a matter of regret to me that I was unable to attend the meeting last year to discuss this question;<sup>2</sup> and I welcome the opportunity afforded now for a discussion upon the educational value of museums, for though the subject is by no means new, I believe it will be conceded that now is the psychological moment for forcing home the truth of the principle that museums are invaluable sources of education (in the strict sense), and it is to be hoped that thereby some practical and far-reaching results may follow.

In the first place the State has now definitely pronounced itself in favour of the continuity of education, and the possibility of extending unlimited facilities to all. As a democratic government it can do no less. But apart from this, as I have pointed out elsewhere, there is an ideal system of education which is all-embracing in its purview of knowledge. The recognition of this continuity from school to university for all classes is a necessary postulate if the unity of education ideally considered is granted, and *vice versâ*.

But in some unaccountable manner such supplementary (using the term advisedly) institutions as technical schools, agricultural colleges, and the like have been isolated from the general plan of education hitherto, and treated merely as adjuncts. Hence they have lost force, and in the public mind, though perhaps not in the mind of the educationist, have been ignored, and school and university almost alone have held the field. But in an ideal system all such institutions, and especially from the view here adopted, museums and art galleries must be integral parts of the educational unity. In emphasising this point of view the supreme importance of both school and university must in no sense be minimised. But what is wanted is a clearer sense of proportion of the place of the institutions regarded as subsidiary.

The value of museums for teaching purposes has been recognised long enough,

<sup>1</sup> Paper read before a joint meeting of the Sections of Educational Science and Anthropology of the British Association at Birmingham, September, 1913.

<sup>2</sup> This was the more fortunate, as it turned out, as it afforded an opportunity for the matter to be extended to a discussion upon the "educational value of museums" to which this paper was a contribution, which I was originally put down to open.

especially from the time of Sir William Flower, who first, I may say, empirically settled the question, by putting it into practice at South Kensington.

But the object-lessons in the schools were perhaps the precursors of that growing demand for nature knowledge, and as a result nature study arose. It is a loose term, but may be systematised as natural history studied in a particular manner and adapted to a particular purpose. It is this which I believe has stimulated the demand for a better recognition of museums, or for a better planning of museums for educational purposes. Nature study is taught almost everywhere, but it is not yet placed upon a firm basis for reasons which follow. It is not recognised as of the value it really can be everywhere. Considered abstractedly, it is a supremely valuable educer. For it proceeds upon heuristic lines, the empirical method of the old philosophers whose influence has been so great upon the world. It stimulates observation, comparison, induction, and deduction, and finally produces, when material is suitable, the scientific method. Without deprecating the value of other subjects, I think it may be conceded that it does this more thoroughly and easily than any other subject. Its subject-matter in the first place provides the stimulus, and its problems arouse the powers of reasoning in so vivid and interesting a manner that education is thereby made fast.

In spite of brilliant exceptions, and the fact that nature study is so valuable to the teacher, it has not received that recognition from the State which alone can ensure success and universal practice. Teachers are able to teach it, but are not obliged to do so, and instruction in the subject is voluntary, and left to their own initiative, to be acquired in their own time, more or less, and at their own expense almost entirely. Hence the necessity, granting its value, and the value of museums for illustrating it, for urging the State recognition of nature study, for emphasising in an authoritative manner, as can be done by this section and as I shall suggest, the need for teaching it generally, and on an improved and endowed basis.

It should further be stated that while museums have recognised the value of their collections for educative purposes, as pointed out by Flower, and have put this into practice for a long time in many centres, yet this has not been done everywhere. And there has been no counter-recognition of this inter-connection by schools. No educationist has taken the matter up in such a way as to produce a corresponding effect.

If, however, the State shall definitely place

nature study upon a sound footing in the way suggested, not only will this have an immediate and salutary effect upon schools, and those who teach nature study, but there will be in turn an equally beneficial effect upon museums, assuming the inter-connection here approved is made of wider application, in the more general arrangement of collections upon an educational basis, and the rejection of obsolete systems still in vogue. Incidentally it should have the effect of placing the smaller museums upon a better financial basis, by the making of grants to them of money for educational development.

This, then, is the problem stated. And in anticipation of the acceptance of the principles urged it is perhaps not superfluous to indicate briefly, more particularly for those who are primarily educationists, the lines upon which museums and school may profitably cooperate.

A museum affords a concrete example by aid of its specimens of the illustrations of nature study in the schools, supposing the subject-matter be taught merely didactically. But in any case the specimens may serve, apart from their illustrative aspect, as material for heuristic instruction or experiment. This, generally speaking, is their prime value.

But they also serve by their considered arrangement, when viewed as a series and not singly, for the teaching of principles.

And in a well-appointed museum the exhibits will be arranged with some regard to the needs of the diverse types of visitors. An ideal plan includes the general visitor, the student, the collector, the research student; and illustrates the economic, industrial, historical points of view, and in the case of art galleries the artistic also. Thus it is quite possible for those who require any one section to inquire what material is available for their particular purpose. And in this system schools are amply catered for, so that the index series or student series should amply fulfill their requirements.

If, moreover, there is a definite cooperation locally, the museum may supply exactly what the school syllabus demands. This saves unnecessary collecting, and should ensure accuracy in determination, &c. There is no denying the value of such facilities, especially if comparison be made with the poor or lacking school collections.

Owing to present difficulties of numbers and other causes, the setting aside of a special room for the use of schools, and the selection of particular matter for a class, upon a definite occasion is a desirable facility which may not everywhere be possible, but is in present circumstances eminently desirable.

Again, the possible instruction in natural history, or in the contents (if it be merely as to the whereabouts of any particular material) of the museum, for teachers unable locally to teach themselves beforehand is a facility museums can afford.

The conducting of demonstrations or furnishing of trained guides around the museum may also be made possible in almost all museums, and be applied to educational purposes for teachers or pupils.

All such work should, however, be conducted upon an organised plan, and not haphazardly. Visits should have a definite object in view.

Not least is the importance of having in a museum an exhibition of current life to supplement the lifeless material in the cases, though these may be made to live again by an intelligent instructor or pupil.

Wild-flower exhibits, vivaria, and aquaria are of especial importance, as they illustrate function and other processes of life not so discernible in the dead state.

To sum up the whole matter, the recognition by the State of the continuity of certain integral parts of educational institutions, *i.e.*, school and university, affords an opportunity for emphasising the unity of *all* such institutions, and the closer interworking in particular of schools and museums in relation especially to what is called nature study.

At present elementary schools restrict education to a period before the life duty of a child or its capacities are discerned. Hence the importance of nature study in some form generally. For it is an excellent educer, and is most valuable in developing and revealing capabilities.

In secondary and higher schools there is a classical and a scientific side, and teaching is more systematised, greater facilities exist, and more care is taken to reveal the capabilities of each individual. What is possible in the one case should be made possible in the other.

Hence the need for *now* appealing for full State recognition of nature study as the best educer, and more suited to heuristic methods. Meanwhile, too, the principle that museums are objective adjuncts to school nature study requires *universal* acceptance and support. It is urged, moreover, that museums are as equally integral parts of an ideal educational system as schools.<sup>3</sup>

<sup>3</sup> The suggestions I made as to the formation of a committee to deal with the question from both aspects (school and museum) were superseded for another, into the educational value of museums (on the lines of Mott's committee), but I am glad to say that the terms of reference were extended at my suggestion to include "the needs of schools," and that *some* educationists were represented upon the committee; otherwise the inquiry especially from the educationist's point of view would have been meaningless. As it is the museum side is in danger of too great emphasis.

#### PERSONAL PARAGRAPHS.

THE death is announced of Mr. John Greaves, Bursar and Senior Mathematical Lecturer at Christ's College, Cambridge. He was a man beloved by everyone who knew him in the University, and had a special corner in his heart for Yorkshiremen. He was eighth Wrangler in 1877, a year in which there were a number of famous men, including Sir Donald McAlister, Profs. Adam Sedgwick and F. O. Bower, and the present Principal of Hartley College, Southampton. For a short time after taking his degree, he was mathematics master at Bedford Grammar School, but returned to Christ's in 1879 to become, with Dr. Hobson, a lecturer in that college.

\* \* \*

WINDLESHAM HOUSE SCHOOL has been removed from Brighton to Southern Cross, Portslade, and the opening of the new buildings was made an opportunity for the expression of appreciation of the work done by Mrs. Scott Malden. Mr. Ian Hannah spoke of the splendid traditions of the school, and of ideals implanted in the boys' minds by "old Harry Malden," 1855 to 1888, and Charles Scott Malden, 1888 to 1896. Mr. Ford, the headmaster of Harrow, recalled that it was in the year of Queen Victoria's accession that the school was first established. Mrs. Scott Malden has been headmistress for seventeen years, and has introduced a higher element in the management of the school than mere man.

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THE first place in the list of successful candidates at the recent examination for the Home and India Civil Services was obtained by Mr. P. J. Grigg, of St. John's College, Cambridge. Mr. Grigg received his early education at the British School, Boscombe. At the age of twelve he obtained a scholarship to Bournemouth School. He gained first-class honours in the Cambridge Senior Locals in 1907, and in March, 1908, won an open scholarship at Magdalene. This, however, he decided to refuse, and shortly afterwards obtained the Bournemouth Education Committee's senior scholarship, and an open scholarship for mathematics at St. John's.

\* \* \*

CANON JAMES is retiring from the head-mastership of Malvern College at the end of the Lent term, 1914. He was educated at Haileybury College and Trinity College, Cambridge. He was for eighteen years a master at Eton, and became headmaster of Malvern in 1897. He considers that sixteen years' tenure of such a position as the head-

mastership of Malvern is long enough, and that a change will be for the benefit of the school.

\* \* \*

MR. MADELEY is retiring from the headmastership of Woodbridge School, a position he has held since 1900. Mr. Madeley was educated at Rugby and New College, Oxford, and was for a year a master at Derby School, and for ten years at Bradford Grammar School. He has taken an active part in the work of the Headmasters' Association, and has also been a member of the Headmasters' Conference.

\* \* \*

MR. VAUGHAN is retiring from Eton. The *College Chronicle* says:—"Starting a new school year, we will sadly feel the loss of Mr. Vaughan, who has retired from work, but continues to live in the house he has built at Willowbrook. This news will be felt by many Etonians, past and present, since he was appointed a master so long ago as 1876, and took on a house in 1884. He himself would be the last to wish more to be said about him here, and we will only add that his retirement removes from the school one of Eton's most honoured figures."

\* \* \*

THE REV. J. F. SPINK, of H.M.S. *Conway*, Liverpool, has been appointed headmaster of the Cathedral School, Bristol. Mr. Spink was at Cranleigh School and St. John's College, Cambridge; he was formerly Chaplain and master at Weymouth College.

\* \* \*

MR. R. B. THRELFALL, of the Grammar School, High Wycombe, has been appointed headmaster of the Grammar School, Ludlow. Mr. Threlfall was educated at Pembroke House School, Lytham, and was a master at Bridlington Grammar School, before becoming second master at High Wycombe.

\* \* \*

MR. C. D. WATERS, of Sexey's School, Blackford, has been appointed headmaster of the Grammar School, Chipping Sodbury.

\* \* \*

MR. HUGH LATTER, of Marlborough College and Corpus Christi College, Oxford, has been appointed headmaster of the Collegiate School at Wanganui, New Zealand. Mr. Latter spent two terms as a master at Liverpool College before being appointed to Cheltenham College, the appointment that he is now giving up to go to New Zealand.

\* \* \*

THE LORD MAYOR OF LONDON, on behalf of eighteen of his immediate predecessors in

office, the past Sheriffs, and the successive Chairmen of the City of London Schools Committee, presented an address in an album and a diamond and opal bracelet to Miss Blaggrave, who is retiring on a pension from the office of headmistress of the City of London School for Girls, after nineteen years' service. Miss Blaggrave was the first headmistress of the school, and upon her shoulders has fallen its organisation from the beginning up to its present number of about 200.

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MR. G. T. HANKIN has been appointed an Inspector of Secondary Schools under the Board of Education. Mr. Hankin was educated at Merchant Taylor's School and Magdalene College, Cambridge. His teaching experience has been varied, for he has held masterships at Cottesmore School, Brighton, St. Lawrence College, Ramsgate, Forest School, Walthamstow, at Frankfurt, at Rouen, and at King's College School, Wimbledon. He has been an energetic member of the Assistant Masters' Association of which at the time of his appointment he was honorary secretary. He was one of the founders and the first chairman of the Secondary, Technical, and University Teachers' Insurance Society, and has represented the Assistant Masters' Association at various educational conferences and international congresses. He is an enthusiastic member of the Officers' Training Corps, and wrote "The Manual for Cadets"; he has written also "The Story of the Empire," and "The Teaching of Civics." He will be greatly missed in the councils of the association he is now leaving for the inspectorate.

\* \* \*

MISS COOK has been appointed headmistress of the New County School for girls at Aberdare.

\* \* \*

MR. T. E. JACKSON, of the Rossendale Grammar School, has been appointed headmaster of the Secondary School and Technical Institute of Bacup and Rawtenstall.

\* \* \*

MR. ERNEST YOUNG, headmaster, Mr. Edmund Lightley, the mathematics master, and eight of the boys of the County School, Harrow, have just returned from a tramp of about 200 miles, through Berne, Interlaken, and Grindelwald, Meiringen, and Lucerne.

\* \* \*

THE new president of the London Teachers' Association, Mr. J. H. L. Ridley, headmaster of the Caledonian Road School, Islington, was educated at Borough Road Training College. He began work as a teacher thirty-

one years ago, in the school of which he has been headmaster for the last fourteen years.

\* \* \*

CANON ARMOUR has opened a new portion of Merchant Taylor's School, Crosby; it has been named in his honour the Armour Building. Canon Armour was for forty years the headmaster of the school, which was founded in 1618, under the will of John Harrison, a Merchant Taylor in London.

ONLOOKER.

### THE LIGHTING OF SCHOOLS.

A CONFERENCE of educationists was held in connection with the National Gas Congress on Saturday, October 11th, when the whole day was spent in discussing, mainly, the various aspects of scientific and unscientific illumination in schools. The question of illumination in schools has been brought very much to the front since the Illuminating Engineering Society not long ago appointed a special committee to consider it.

The preliminary report of the committee was published in full in THE SCHOOL WORLD for October, so it need not be described here. The difficulty in the way of the teacher in deciding whether or not the prescribed candle-power is given in any part of the schoolroom is fully appreciated, and quite recently an instrument has been put upon the market which enables a test to be made in a simple way. This test consists merely of focussing, in a piece of apparatus similar to an ordinary camera, the desk, blackboard, or other portion of the schoolroom which it is desired to ascertain has the necessary illumination, and focus having been obtained, a number in foot-candles is immediately read off on a scale. Opinion was expressed at the conference that all schools should be provided with one of these instruments. Practically no attention was given to the question of the daylight illumination of schools, beyond the expression of opinion by Sir George Kekewich that the frames of windows should be taken right to the ceilings, as this not only gives a better lighting effect, but incidentally considerably improves the ventilation when the windows are down. Much investigation is being carried on in this connection on the Continent and in America, and before very long a considerable amount of information may be expected to be published in regard to it.

Another matter which came in for a good deal of comment at the conference was that home-work on the part of school children should be abolished. The reason given for this was that, having laid down a standard of lighting for schools, and the children's eyesight having become accustomed to that degree of illumination, harmful results would follow in the majority of cases by giving them home-work, inasmuch as the lighting of the average house is considerably worse than the standard laid down for the schools in the special committee's report. Sir George Kekewich expressed the opinion that very close needle-

work should not be done in the elementary schools, as there was little use in teaching the average child to make such things as lace, &c. Bearing on this aspect of the question may also be mentioned the expression of opinion that the use of art paper, *i.e.*, paper with shiny surfaces, often used in school books, should be avoided, owing to the disturbing effects of the reflections from it. In this recommendation the conference obviously followed the report of the committee of the British Association upon eyesight and school books.

### RECIPROCAL FOREIGN TRAVEL.

A CONGRESS held in London from September 23rd to 26th may have a great influence on the future of English education. We refer to the first congress of the Franco-British Travel Union, which has for its aim the development of reciprocal travel between England and France. The Union was founded in 1911, and already numbers among its patrons such men as the President of the French Republic, the Duke of Argyll, Mr. Asquith, M. Barthou, Sir Edward Grey, and M. Paul Deschanel. The inception of the Union began in France from a wish to encourage English people to travel more widely in France, and to persuade the French to visit England for pleasure and instruction as well as for business. If we may judge from the quantity of French we have heard spoken in the west end of London during the past summer, the latter aim has been already accomplished. Formerly the French visited England only for business, never for pleasure; while the English, though visiting on business as well, generally limited their pleasure trips to Paris, the Riviera (in winter), and the Channel coast resorts (in summer). Among the many subjects discussed were improvements in custom-house formalities, reception of paying guests in French houses, cultivation of winter-sports districts, the Channel tunnel, and the importance of educational travel.

It is this last subject that will most interest practical teachers in England, especially modern language teachers, whose work has been rendered so much more difficult in the past by the woeful narrow-mindedness and lack of imagination of their pupils. The school journey is one of the recognised forms of education in all continental countries, and it has been attempted somewhat timidly in England itself. But what is wanted is a great extension of the principle; every school should give an opportunity to the members of its sixth form to go abroad once a year. What they would see they would never forget, if their eyes had been trained to see it; whereas most of their reading is soon lost to them for ever. The ideal method would be to devote an hour a week during the winter months to a lecture on what was to be seen on the journey during the Easter or summer holidays. Books of travel and description by good authors should be read in spare time, and visits paid to museums and picture galleries to get an idea of what was to be visited. We know of one well-known coach who pursued this plan and took some of his pupils

to Sicily for four weeks last Easter; those who had read and studied most got the most enjoyment and profit out of the trip. It is not everyone who can afford the time or the money to go to Sicily, but most middle-class families could afford a fortnight in Belgium, Holland, the Loire valley, the towns to the east of Paris, Normandy, or many another district known to the educated traveller. Younger boys could stay in Great Britain and see the abbeys and moors of Yorkshire, the Lake District, Cornwall and Devon, the Peak, the Scott border-country, East Anglia, or any other resort that was different from their everyday environment. It is a principle well worthy of the attention of the heads of the teaching profession.

## OXFORD LOCAL EXAMINATIONS, JULY, 1913.

### HINTS FROM THE EXAMINERS' REPORTS.

**SENIOR.**—The examiners in *Arithmetic* point out that notwithstanding some improvement in methods, a very general carelessness in their application renders the result in this subject much less satisfactory than in previous years. Negligence in the use of approximations; confusion of dimensions; the use of long decimals instead of simple vulgar fractions, and of awkward vulgar fractions where decimals were peculiarly appropriate for purposes of approximation; failure to appreciate the differences in meanings of such terms as "multiple," "factor," and "power"; lack of skill in manipulation, particularly in the metric system; carelessness in reading the question; all these contributed to the unsatisfactory result. The prevalence of the following error was very remarkable. In order to find a percentage profit in an ordinary purchase and sale transaction, the profit on a single article was found, and the profit on 100 articles was presented as the answer. The impression created from the perusal of the papers is that the subject is receiving much less attention than usual.

Reporting on the work in *General Literature*, the examiners insist that candidates should read more carefully the instructions given them, e.g., many of them wasted time in writing about four or five of a list of characters in fiction when three were asked, and a few attempted to identify all the fifteen quotations in the first question, five of which were required. The worst feature of the papers was the literary history. Bunyan was frequently placed in the fourteenth century, and Scott and Thackeray in the fifteenth or sixteenth century, occasionally by candidates who mentioned that Thackeray's "Vanity Fair" referred to the battle of Waterloo, of which they gave the correct date.

In the candidates' answers to the questions on Shakespeare's "As You Like It," there were a considerable number of very weak papers, and the average quality of the work was rather disappointing. Where explanation only of words or phrases was asked for, the real points were often ignored, and time was wasted by unnecessary reference to context. There were few serious attempts at comparison of

characters, &c., even when material for such comparison was adequately given in candidates' answers. Spelling errors were still common, and proper names, places, and events in classical allusions were often at fault.

In one of the papers on *English Grammar* many candidates failed to grasp the structure of the sentence given for analysis. More attention should be paid to parsing; even good candidates parsed quite wildly, and seemed to have forgotten how much information is required.

Commenting on the first *Latin* paper, the examiners reported that though the easier passage was almost always carefully and conscientiously done in point of structure and phrasing, it was often marred by the grossest verbal blunders. The grammar, apart from the sentences set for translation into Latin, which were indifferently done, was, on the whole, satisfactory. In the second paper the optional unseen was somewhat disappointing.

The examiners in *French* state that the incredible carelessness to which attention has been directed in previous reports seems ineradicable. In particular, transposition of the persons of verbs—the subject in the first person and the verb in the third, or *vice versa*; e.g., *je demanda, il allais*—was almost universal, and disfigured even the best copies. In a large number of exercises the handwriting was illegible.

The chief defect in French translation still seems to lie in the inability to write simple grammatical English; so that it is not too much to say that candidates gained more credit in the foreign tongue than in their own.

In the *Geometry* answers the proofs given of the converse of the proposition which states that angles in the same segment of a circle are equal were most unsatisfactory. In the common proof by the *reductio ad absurdum* method, the points assumed to be on the circle were seldom clearly defined. Such statements as "Let the circle go through E" (the position of which had to be guessed from the figure) instead of "Let the circle intersect AQ, or AQ produced, at E," were very common, and in the subsequent work the reason for the impossibility of the assumption was not given. The work on similar triangles was usually good, although the majority were unable to give correctly the definition of similarity. In the verification of a calculation, most candidates failed to show how their figures verified the calculation.

In *Algebra*, except for a tendency to run on from one part of a question to another without any break, the work was, as a rule, well set out. The gross error of cancelling terms instead of factors in fractions was still very common, and signs were often altered by candidates at the end or in the middle of their working to suit their convenience, and without any justification. Another very common error was to say

that, if  $\frac{x^2}{4} + \frac{y^2}{9} = 1$ ,  $\therefore \frac{x}{2} + \frac{y}{3} = 1$ . The problem was

generally well done, and the graph well drawn, although the units were not always shown. The deduction from the graph was seldom attempted, and, when it was, the original graph was not, as a rule,

utilised. The functional notation is now more generally known, but there was much carelessness in the matter of signs in this question.

In the proofs of identities in the *Trigonometry* answers, candidates showed considerable weakness in the use of brackets; these were frequently omitted, and the omission caused mistakes at the next step. In the solution of an equation, candidates frequently stated that a zero value for  $\sin x$  was inadmissible; also the sines of angles in the third and fourth quadrants were very often given positive values. One weakness showed itself in many scripts, and should be carefully avoided; in questions where a result was given to be proved, candidates frequently made some small slip, which resulted in their final answer being incorrect; it was the almost invariable practice to add "equals the required result," often with a reason assigned that was obviously untrue. More attention should be given to the meaning of the circular measure of an angle. Logarithms were not intelligently used in the answers to the second paper; in a question where a result to six significant figures is required, four-figure logarithms should obviously not be used. In a question on heights and distances, a large proportion of the candidates used in the final step  $\log(x^2 + y^2) = 2 \log x + 2 \log y$ , and frequently numbers were said to be equal to their logarithms. A quite common habit is to give an unfinished effort the appearance of completeness by adding "therefore equals the required result. Q.E.D."; this a bad habit, and should be carefully avoided.

On the whole the work in *Botany* was satisfactory, though a high level of excellence was reached by very few candidates. The subject of plant physiology is far better known than formerly, but there is a regrettable tendency to disregard the importance of morphology, as is shown by the large number of bad answers on the structure of the fruit. Much of the better quality of the answers, as a whole, is attributable to the practical acquaintance gained in the laboratory, and this applies no less to the descriptive than to the experimental work.

The portion of the examination in *Practical Chemistry* which aimed at testing the ability of candidates to observe was not so well done as the analytical part. Many of the candidates seemed at a loss how to examine the filtrates, and few evaporated them to dryness and compared the products. A large number of the candidates evidently do not understand the principles of volumetric analysis, and so employ methods which could not give them the required result. Of the others, many fail to get good numerical results through using absurdly large or small quantities of some of their substances or solutions, or making the latter of unsuitable strength. A considerable number of candidates, who have made reasonably correct observations, fail to make the required simple calculation correctly.

In answers in *Electricity*, the elementary definitions were very often inaccurate, and only one correct solution of the calculation of the resistance of a shunt was received. Perhaps more attention might be given to electrostatical questions, the nature of a dielectric being very frequently misunderstood. Questions on

electrolysis and measurement of resistance were generally well answered, but the determination of magnetic moments appeared to offer difficulty. More stress might be laid on the value of conciseness in answering questions.

The answers in *Heat*, with the exception of those from a few centres, were extremely bad, a result possibly to be attributed to the fact that most of the questions required an intelligent application of the information usually found in elementary text-books rather than its mere knowledge. It thus appears that the average candidate has not been properly trained to use his powers of deduction. In the answers to the second paper the question involving the calculation of pressure was generally avoided, as well as that dealing with radiation.

JUNIOR.—Among the weaker candidates the chief points calling for criticism in their *Arithmetic* answers were:

(1) Long involved calculations where much simpler methods of procedure were obvious.

(2) A too slavish adherence to the use of some particular method without regard to its suitability—for example, the decimals in the question on the metric system were converted into complicated vulgar fractions, which greatly increased the labour of the candidate and added to his chance of error, while sometimes the converse process was adopted and all vulgar fractions were converted to decimals.

(3) The frequent omission of necessary explanations and even steps in the working, the results of calculations being produced without any indication as to how they had been obtained.

Much difficulty was experienced in giving the value of the remainder when one compound quantity was divided by another, and amazing ignorance was displayed in stating the number of weeks in a year.

The answers to the second paper in *English History* on the whole were dull and mechanical. There was the usual tendency to disproportionate writing. The account of Archbishop Becket, for instance, was usually given at inordinate length, and a good many papers were seriously marred by this want of proportion. The quality of the spelling still leaves a good deal to be desired, and the handwriting was often atrociously bad.

The chief faults in *General History* were: (a) failure to realise the importance of the Irish mission in the conversion of the English to Christianity; (b) frequent ignorance of the meaning of the term "Norseman" (it is often confused with Briton or Anglo-Saxon); (c) apparently complete ignorance of French history (a great majority of the candidates, even some of the best ones, who attempted to answer the question on the relations of the French kings with the Papacy, dealt with the Empire and Papacy instead); (d) almost complete ignorance of the policy of Henry II., all the answers on that subject being thoroughly bad.

In the *English Composition*, despite many exceptions, the majority of candidates failed to carry far enough the process of changing simple sentences into complex and compound. Many were content to use the conjunction "and," instead of expressing the logical dependence of the sentences. In the essays the



excessive length of past years had largely disappeared, with consequent improvement in punctuation and arrangement. Many, however, were written in the conversational style, and the note of unreality was not altogether absent. A typical example of what is meant by this last defect would be an allusion to a nightingale singing during August in West Devon, in an essay which professed to be based on real experience.

In the report on the answers to the questions on Shakespeare's "Twelfth Night," the examiners state that by way of criticism four points may be mentioned: (i) Only a few candidates can or do quote the text at any length, when illustrations from the play itself are necessary; (ii) there is a tendency towards the use of slang and abbreviations, even in answers which are otherwise well done; (iii) the same thing is said over and over again; (iv) it is a waste of valuable time to copy out the questions.

The "context" question in the paper on Scott's "Old Mortality" was much the worst answered. Many candidates, who obtained quite good marks on the other questions, could assign scarcely a single context correctly; this seems to show that the text of the book had not been carefully studied. Questions were sometimes not carefully read. The English style was on the whole better, though the use of vulgar clichés was still only too common, and in not a few papers the English was quite ungrammatical. Long and verbose descriptions were sometimes used to try to conceal ignorance of facts. The spelling was often lamentable.

Most *Latin* papers were spoilt by thoughtless mistakes. Some candidates have no idea of putting the simplest words into Latin. Parsing would be as clear and definite and more simple if the abbreviated form and traditional order were adopted.

The *Cæsar* translations showed want of care in the observation of constructions, even by some to whom the general sense was known. In the second *Ovid* passage the sense was missed all through by a large number of candidates.

In *French* many of the candidates showed great ignorance of grammar, especially of the verbs and of the correct use of their tenses. They were frequently weak in their accents.

The standard in *Geometry* on the whole was rather higher than last year; but the improvement was due entirely to the fact that the candidates confined themselves mainly to practical geometry. Theoretical work showed, if anything, a falling off as compared with recent years. Bad mistakes in principle are still very frequent, such as: "similar triangles are congruent," "opposite angles of a parallelogram are supplementary," "diagonals of a parallelogram bisect the angles," and so on. Looseness of expression is very common; for instance: "a line touches a point," "produce the point," "bisect into ten parts," &c. Again, two circles are said to "touch" when section is intended. The examiners wish to repeat the warning that it is useless to allude to a theorem by a numerical reference. Candidates still fail to note the instruction that their methods of construction in practical drawing should be described in words, a brief

description being sufficient. In the questions concerning parallel lines candidates were inclined to insert a large amount of irrelevant matter of which they made no use in the line of argument (sound or otherwise) eventually adopted. In attempting the other questions they fell into the opposite error of assuming as obvious much that should have been proved.

The paper in *Elementary Algebra* was better done this year than last. A not uncommon mistake in clearing equations of fractions was to forget to multiply the right-hand side by the L.C.M. of the denominators. Very many of those who squared fractional indices correctly showed by their failure in the test of substitution that fractional indices themselves conveyed no meaning to them. Comparatively few seemed to be familiar with the notation  $f(x)$ .

The numerical accuracy of the candidates who took *Mensuration* left a great deal to be desired. Very few ever availed themselves of any simplicity presented in a question. Thus, in the third question—"the area of the base of a cone is equal to that of a sphere of radius 6 in., and the volume of the cone is equal to that of the sphere, &c," they calculated laboriously the area and volume employing the numerical value of  $\pi$ , and then divided the results by this numerical value, instead of eliminating it before the divisions and multiplications were performed. The logarithmic work was very bad indeed. Calculations which were quite correct up to a certain stage were completely ruined by an attempt to use logarithms. The invariable fallacy was the adding together of numbers by adding their logarithms. Identical but erroneous formulæ for the volume of a conical frustum were given by all or nearly all the candidates at certain centres.

There was a large amount of inaccuracy in arithmetical and other details in the *Trigonometry* answers, and no attention was paid to correct approximation. The majority of candidates showed familiarity with mathematical tables, but their employment of logarithms often increased rather than diminished their labour.

Most candidates taking *Experimental Science* seemed to be unable to give a simple, clear account of their work. It is essential that candidates should learn to work out as simply and shortly as possible (a) what they actually do, (b) what they actually observe, (c) what conclusions can be drawn from these observations. The description of a spring balance in the second paper and its uses was not good. Most of the candidates did not understand the principles underlying the use of a spring balance, and only a very small proportion described its use in the measurement of forces in mechanics. A large number seemed to think that the fact that hot water is cooled by the addition of ice is a proof that heat is absorbed in the melting of ice. The writing out of the answers was not satisfactory. There was a general want of clearness of thought and of expression, and much irrelevant matter was written.

The most notable faults in the *Chemistry* answers included:

(1) Failure to describe experimental work in a complete and systematic manner.

(2) Inability to perform simple calculations of gas volume, or to explain the principles on which the calculations were made.

(3) Looseness of expression. For example, very many boys use the words "heat" or "ignite" and "burn" as completely synonymous.

## PSYCHOLOGICAL ANALYSIS AND EDUCATIONAL METHOD IN SPELLING.<sup>1</sup>

By MISS SUSIE S. FAIRHURST.

SPELLING, as the reproduction of the constituent parts of a word-whole, in speech or writing, involves a mechanism somewhat different from that of reading, which is recognition of the word-whole. The desideratum of teaching method is that it should involve the least possible expenditure of time and energy in the production of efficiency in spelling. A study of the actual processes involved, in children and adults, is obviously of first importance.

In the total word-complex there are the visual and writing-motor elements forming the written symbol, and the auditory and speech-motor elements of the spoken symbol. The visual and auditory elements may be either perception or imagery; the motor elements either actual movement or imagery. The writing-motor adjustment is less highly specialised, more artificial, and more lately acquired than the motor processes of speech. It is probable that its imagery does not pass over so readily or so definitely into actual movement. The impulse to image or actually to experience the writing movement on hearing a word is much more controllable than the tendency to articulate on seeing it. The visual form of each letter carries a qualification due to the tactual and muscular experiences of writing it; but those experiences are not nearly so important for the comprehension of the visual form of a new word as are the speech-motor elements. They are probably more important with children than with adults. Writing movements do not appear to act as an independent medium of memory, as the speech movements may do; they rarely enter as a conscious factor into recall, and, when present, are so as a qualification of the visual memory. The intrinsic value of the writing memory appears greater than it strictly is by virtue of the extra aids it affords to visualism, to attention, and to the fusion of the visual and auditory elements.

Articulation of syllables is usually introduced into any method of learning. The visual form does not become a "word" until it is pronounced, either aloud or internally. The tendency to pronounce on seeing the word is almost universally irresistible and essential to learning, whatever the imaginal type of the observer. Anthropological considerations throw some light on this fact—spoken language precedes written.

The *unit* of spelling is usually the syllable—the syllable finds direct expression as one whole, even in spelling by speech. And the syllable is primarily a speech-unit; the letters are grouped by sound-

synthesis, the visual form often showing syllabic grouping in correspondence. There is visual synthesis of the general form of the word, as a visual picture, apart from its sound-value, but the synthesis of syllabic grouping is determined by and follows on articulation. With a perfectly familiar word, the articulatory syllable simply "is" the visual form—the fusion is complete. As regards the correspondence of visual and auditory constituents, the English language is in a peculiar position. The visual word-whole contains its parts, the letters unchanged. The auditory-motor whole is a very different thing from the sum-total of the sound values of the letters (apart from letter-names); some of them are not represented at all, and many are quite changed in value. The auditory constituents of a word are strictly not the letters, but phonetic units. A complicated and highly variable system of correspondences between the spoken and written letters thus occurs. This increases the strain on mechanical memory—a separate memory for almost every word being necessary.

Articulation of the letters is thus no direct aid to the spelling memory and a wasteful method of learning. Drill of some form is, however, essential to spelling efficiency, since the spelling process is in the nature of a habit, and efficiency means a habit so fixed as to be almost unconscious. Articulation of the syllables simultaneously with the writing of the word is probably the best method of learning—it introduces every essential element, visual, auditory, and motor; by producing the visual elements in succession it aids the exact analysis of the speech-whole, it helps the synthesis of the visual elements in accordance with the articulatory units, and therefore the fusion of the written and spoken symbols.

## HISTORY AND CURRENT EVENTS.

APPARENTLY the whirligig of politics has ceased for a time in the Balkan peninsula, and it is possible to sum up the result of the fighting and diplomacy of the last twelve months. If we had been writing in the early summer we should have said that the Turkey in Europe of our boyhood days had practically disappeared with the exception—a large exception—of Constantinople and its immediate neighbourhood. But now that the mutual jealousy of Christian States has once more allowed the Turk to advance, and he has almost quietly re-taken possession of Adrianople, the old phrase may still remain, though for the land south of Hungary we may now be obliged to use the geographical expression drawn from the name of the range of mountains there. So it was in the Middle Ages. After the enthusiasm at first aroused by the fate of "the Holy Land," and of pilgrims thither, had cooled down and European princes were more interested in gaining at the expense of their neighbours than in fighting the Turk, the Seljuks advanced until Buda-Pest was under their power. So it has been—but we must not enter into the disputed points of modern politics.

YET we are sorely tempted to comment on some of those more modern rivalries. There has recently

<sup>1</sup> Abstract of a paper read before the Educational Science Section of the British Association at Birmingham, September, 1913.

passed away a man whose letters to *The Times* always appeared as a kind of stormy petrel whenever there was any possibility of collision between the two great Powers on whom seems to be laid the burden of the white man in Asia. Whenever there was an attempt to show that Russia and Great Britain need not be rivals but colleagues in the business of Europeanising the East, Prof. Arminius Vambéry was quoted as an infallible oracle on the other side. Now that the papers have published his obituary we can understand better the man that lurked under the Professor. Hungarian by birth, conversant as no other man was with Oriental languages, his sympathies were naturally with all whose turbulent independence was threatened by the might of Russia, a State which, just because, if we must have it so, is less advanced than Great Britain is perhaps better adapted to deal with Asiatics. So the "inevitable" is seen as the result of man's energies and desires.

To us ordinary laymen, the lawyer is like the doctor. We are glad to see him, and—we are glad to see the back of him. The whole tribe is regarded as a necessary evil. That is the result of our ignorance; if we read more law books, especially those dealing with the history of law, we should learn that lawyers, like doctors, are interested as a body, whatever may be said of individuals, in prevention rather than cure. But as few of our readers, if any, are likely to study law books, we would recommend them to read the best available report of the speech which Lord Haldane recently crossed the Atlantic to deliver. He said nothing of the patient building up of law and of law codes in the domain of domestic jurisprudence, but he dealt with a far larger subject, the influence which the profession he represented exerted and could influence on international relations, and that in the interests of peace. He thought that Great Britain, Canada, and the United States of America, with a common legal tradition and a common language, could make a world-compelling force in the best interests of all.

"HOLLAND" and "America" have always been interested in the history one of the other, and by "Holland" we mean, not so much the modern kingdom of that name, but the ex-county which shook off the yoke of its Habsburg rulers in the sixteenth century, and, forced by the dire necessity of enlisting the loyal support of all its members, early practised that toleration of differing religious opinions which at that period of European history was theoretically regarded as damnable and practically never allowed. Our friends in New England naturally know better than we do here the history of those who in early Stuart times fled from England in order to gain the freedom they required for themselves, and, in some few instances, to grant the same to those who differed from them. It is a long story, which was in the minds of those who in September last unveiled a tablet in the Scottish Church at Rotterdam to commemorate the assistance given by the Dutch Republic to the Continental and British emigrants to America from the time of the Pilgrim Fathers to the present day.

## ITEMS OF INTEREST.

## GENERAL.

PROF. JOHN ADAMS will lecture at the London Day Training College, Southampton Row, W.C., on Saturday mornings during November, January, and February. In 1913 the subject will be "American Education"; in 1914, "The Literature of Education." These lectures are arranged by the London County Council, and are free to teachers, who should apply, giving their full name and stating the school in which they teach, to Prof. Adams for cards of admission.

THE College of Preceptors announces a new series of winter meetings, to be held at the College, Bloomsbury Square, W.C., once a month until March next. The lecturers and subjects are:—"Wonders and Romance of Insect Life," by Mr. Fred. Enock; "Irish Life and Song," by Miss Madeleine O'Connor; "Camels and Sand, Arabs and Veiled Women," by Mr. John Foster Fraser; "Peeps at Parliament through a Woman's Eyes," by Mrs. Philip Snowden; "The Teaching of English," by the Rev. Dr. David. Particulars should be obtained from the secretary. The meetings are not limited to the members of the college.

A MEETING of the London Branch of the Association of Science Teachers was held on October 22nd, at the Grey Coat Hospital, Grey Coat Square, Westminster. A paper on recent work in botany was read by Miss E. N. Thomas, of Bedford College, London. Particulars of the association can be obtained from the honorary secretary of the London branch, Mrs. Jewel Pearce, Dulwich High School, Thurlow Park Road, S.E.

THE next meeting of the London branch of the Historical Association will be held at University College, Gower Street, London, on Friday, November 21st, at 8 p.m. Mr. W. R. Lethaby will read a paper on the architecture of Westminster.

AN address entitled "A People's Theatre," is to be given to the London Branch of the Teachers' Guild by Mr. W. Poel, founder of the Elizabethan Stage Society, at 9 p.m. on November 20th, in University Hall, Gordon Square, London, W.C. The address will follow the annual meeting. Friends of members of the guild will be admitted by ticket, price 6d., obtainable from the honorary secretary, 74 Gower Street, London, W.C.

MANY readers will be glad to know that the report of the Joint Committee on Grammatical Terminology, which formed the subject of a symposium published in our issue for May last, has been published by Mr. John Murray, at the price of 6d. net.

A CONFERENCE of the Association of Headmistresses was held on October 3rd, to consider the proposals contained in a memorandum issued by the Association of Headmasters, advocating a change in the present system of the payment of grants by the Board of Education. The headmasters' proposals are that grants should in future be paid on the salaries of

the teachers, instead of as at present, on the attendance of the pupils. A resolution approving and supporting the headmasters' proposal was not carried. An amendment in favour of additional grants from the State to improve salaries, the present basis being adhered to, was carried by a large majority.

THE Senate of the University of London has resolved that on and after September 1st, 1914, the senior grade certificate of the Intermediate Examination Education Board for Ireland shall not be recognised as exempting from the London Matriculation Examination; and also that the Oxford Senior Local certificate shall exempt from the matriculation examination only if, in and after 1913, the student has obtained, or reached the standard of, honours in the first or second class, and has passed in English composition, including essay, general literature, and grammar. In the case of the Oxford Locals, the other subjects are the same as in previous years, and the regulation that the student must have passed in a defined group of subjects at one and the same examination still holds.

A COURSE of twelve lectures for teachers on biology and social problems, arranged by the Eugenics Education Society, began on September 26th with an introductory lecture on the biological control of life, by Prof. J. Arthur Thomson. He showed that the biological factors of life are heredity, function, and environment, and that these can in many respects be controlled. False simplicity must, however, be guarded against. All phenomena of human life are not interpretable in terms of organic factors alone; general cosmic factors and those implied by human society also determine the quality of individual existence. It is difficult to realise in what way inheritance, determined as it is by parentage and ancestry, can be controlled, but it brings with it variability or the "rearrangement of qualities in each new life," which may be inhibited or developed to some extent. Thus the hereditary nature, if not of the individual yet of future generations, is in some measure under control. Function implies all the action and reaction that take place between the individual and the environment, all that is meant by work and play, all that leads to the formation of habits. This factor is obviously most controllable of all. Environment, using the word in its widest sense, implies "the whole sphere of operative influences" that play on the organism or that the organism plays with. Some elements are controllable and absorb the attention of social reformers more and more. Thus in a certain well-known instance it was found that, when a number of children from the lowest type of slum-dwellers were removed to entirely new and favourable surroundings only about 12 per cent. failed to develop into useful members of human society. The course is being continued by Dr. M. Greenwood, and Prof. Thomson will deliver the concluding lecture.

WHILE committees of prominent educationists and theologians are expressing fears of the use of the cinematograph in education, very useful and important work is being done by Messrs. Pathé Frères in

producing films likely to be of great aid in teaching. We have received lists of such films. They are mostly scientific, such as animals and reptiles, insects and pond life, marine life, bird life, plant life, industries, travel, physical science, and recreational science. Although no list contains as many items as would be required in one year's syllabus, yet there are many items that could be fitted in parts of a syllabus with great effect. In order to arouse public interest in their films Messrs. Pathé Frères have arranged for a series of weekly "educational" matinées to take place at the principal picture theatres of London, and at which a few of the films mentioned above will be shown. This firm has so far performed two acts in connection with their work for which they deserve the thanks of all those who believe that the cinematograph may render valuable service to education. They have had their films produced under the direction of competent authorities and they have appointed as their educational manager Mr. Joseph Best, an experienced teacher, and therefore acquainted with conditions and needs of instruction. These series of matinées, however, do not seem to us to satisfy the high standard which has characterised Messrs. Pathé Frères' educational work; they savour too much of pure entertainment. We should like to see experiments made to determine the difference in progress, if any, between one class of pupils taught geography with the cinematograph and another class taught geography without it. If Messrs. Pathé Frères would allow their machines and films to be used for such purposes they would enable precise information to be obtained upon a subject on which at present considerable differences of opinion exist.

THE London Teachers' Association held its forty-first annual meeting in the Royal Albert Hall on October 11th, when the annual report was considered. The membership of the association is 18,607, an increase of 691 over last year's figures. Every member is a full-time certificated teacher or instructor working in a school aided or maintained by the London County Council. The report makes reference to the fact that "the relations between the teachers of London and the Education Authority continue to be of a most harmonious character." It is made clear, however, that this does not mean that the teachers agree with all that the authority does or that they are satisfied with the way the staff is treated. It is clear from the report that there is widespread discontent in the London teaching service with regard to salaries. The report promises a vigorous salaries campaign on the part of the association. Reference is also made to the division of opinion within the association itself as to the machinery of government. The committee has come to the conclusion that it is no longer possible for the association to be governed by the annual general meeting, with the uncertainty as to the numbers attending and the possibility of specially interested groups controlling the policy of the association. An attempt to change the constitution made during the year was the subject of legal proceedings against the officers, and, in order to put the committee right, amendments to the rules abolishing the

annual meeting and substituting conferences are under consideration.

MR. J. H. L. RIDLEY, headmaster of Caledonian Road School, the incoming president of the London Teachers' Association, in his presidential address delivered in the Royal Albert Hall on October 11th, stated that the question of the salaries of class teachers dominated all others in its importance to the vast majority of London teachers. He asserted that the initial salaries of assistant-teachers in London forty years ago were better than they are to-day. In the early 'seventies the fixed salaries of assistant-masters were £100 per annum, and of assistant-mistresses £60 per annum, but to those salaries were added a share of the Government grant, which brought the minima of the scales above the corresponding amounts now paid to teachers. He gave instances of teachers in the early 'eighties who were earning £30 or £40 a year more upon entering the service than teachers in similar circumstances would earn to-day. He admitted that there were large classes in those days, and the hateful system of payment by results, neither of which he wished to see again. Mr. Ridley stated that their present demands for class-masters were £100 to £250 a year by annual increments of £10 from £110, and for class-mistresses £90 to £200 a year by annual increments of £10 from £120. Superannuation makes large inroads on the teacher's purse, 10 per cent. of the salaries of middle-aged teachers going in provision for old age. The hope of promotion is practically dead among assistant-teachers.

MANY music competitions for valuable prizes are included in the arrangements for the Bristol International Exhibition, to be held next summer. The competitions will take place in the great concert hall of the exhibition, capable of seating 3,000 people, and choral, solo, and part singing, as well as instrumental music, will be included in the contests. For the two chief choral events prizes of £150 and £50 will be awarded on both occasions, and other prizes are on a generous scale. Preliminary programmes may be obtained from the competitions secretary of the exhibition at Bristol. The music committee is composed of most of the prominent British musicians.

MARBLE ARCH HOUSE, the home of the Institut français de Londres, began its fourth year's work on October 1st. It is one of the most striking examples of the working of the *entente cordiale*, as it is properly a branch of the University of Lille working on English soil. It receives financial help from the French Government, and among its patrons are all the shining lights of France who dwell amongst us, from M. Paul Cambon, the Ambassador, downwards. It appeals to three classes of the community. First, for those who love French literature, art, and social amenities, it holds lectures and *causeries*, and has a library where French books, magazines, and newspapers can be found. For the amateur of France it presents a little corner in which he can live for an hour or so in a perfectly French atmosphere. Secondly, for the business man there are courses of commercial French, French law, book-keeping, and so forth.

Thirdly, for the advanced student of French there are classes of translation, literature, and phonetics. One of the new courses that started last month was one to prepare teachers for the recently established "Certificate in French" that is to be granted by the Universities of London, Cambridge, and Oxford, as well as for the *baccalauréat ès lettres* of the Université de France. Eminent practical teachers have been secured to train those who propose to become modern language specialists, and thus do away with the reproach that we have to go to France and Germany for our professors of those tongues, whereas they do not come to us for their teachers of English.

SOME of our readers will be interested to know that a subject list is being prepared of the books and papers in the Board of Education Library. The value of this library to a person who is in any sense a student of education is not so well known as it ought to be. As, however, the library is maintained strictly for reference purposes, and can only be consulted on the spot, the publication of these lists should be a great help to students living at a distance who want to save time by ascertaining before they visit the library just what it contains and on what shelves the books are to be found. The two lists already issued relate to school buildings and equipment and to school hygiene and physical education respectively, and other lists are in course of preparation.

THE President of the Board of Education took advantage of his first public appearance since the address of Principal Griffiths at the Birmingham meeting of the British Association to reply to the strictures contained in that address upon education in general and the Board of Education in particular. The occasion was the opening of the new county school at Tottenham on Saturday, September 27th. Mr. Pease quoted Dr. Sadler's encomium of English education given at the British Association meeting, when the latter claimed that during the last ten years no country had taken more trouble over education than England had; and proceeded to read extracts from the various codes and publications of the Board in favour of elasticity and against dull uniformity. On the question of character training, Mr. Pease pointed out that the Board had appointed to its inspectorate a teacher who had done much towards the establishment of the prefect system in Warwickshire.

PRINCIPAL GRIFFITHS replies to the speech of Mr. Pease in the Educational Supplement to *The Times* for October 7th. "I may add, however," he states, "that in the replies which I have received from the Directors of Education, few pleas, with the exception of those for smaller classes and further relief of rates, were more frequently urged than that the L.E.A. should have more power and liberty. . . . If I might venture to summarise my views, I would do so as follows: In recent years the State has increasingly arrogated to itself the duties of the parent, but has failed adequately to adapt its machinery to the new conditions. Had it not been for the voluntary aid of such external bodies as the Boy Scouts, the Church Army, &c. (whose beneficent influence benefits but a small proportion of the children in the primary

schools), comparatively small advance would have been made in efforts for the promotion of the formation of character and the awakening of general intelligence. We must recognise the fact that the Board of Education is, by the steady growth of its powers, establishing itself as *in loco parentis* to some six million children, and that, in consequence, the sphere of its activities is no longer circumscribed by the walls of the schoolroom."

IN the issue of *The Schoolmaster* for October 11th an account is given of an interesting educational experiment conducted at an American school. Complaints that reading, writing, and arithmetic are not so well taught as they used to be are heard frequently in America concerning American schools, as well as in England about our own schools. In Springfield, Mass., U.S.A., the matter has been brought to a test. In 1890 there were discovered in the attic of the High School building in Springfield old sets of examination questions that had been written in the fall of 1846. They consisted of printed questions in geography and arithmetic, with answers written on the printed sheets, and written tests in spelling and penmanship. Two of these tests were later in 1905 given to 245 ninth-grade pupils in the Springfield schools, and the results were compared carefully with the results of the tests of 1846. The following is the comparison:—

*Spelling.*

Number of pupils who took tests ...	1846	1905	
Average per cent. correct ...	85	245	
	40.6	51.2	

*Arithmetic.*

Number of pupils who took tests ...	79	245	
Average per cent. correct ...	29.5	65.5	

Of the class in 1846, only sixteen of the eighty-five pupils stood as high in spelling as 70 per cent., the present "passing" mark in most schools. Three pupils had no words spelled correctly; nine had only one right; while twenty-four, or more than one-fourth of the entire class, misspelled seventeen or more words. Comparisons of the geography and penmanship were even more conclusive evidence of the superiority of the pupils of 1905 over those of 1848.

AT the annual meeting of the National Federation of Class Teachers, held recently in Derby, the president, Mr. W. T. Kenward, adumbrated the following propositions:—Physical fitness of the children the first condition in education; educational reform must begin with the primary schools; primary schools still largely staffed with unqualified teachers; class teaching—a poorly paid profession. The average salary of a class teacher in England is £129 for men and £94 for women; in Wales, £116 and £87 respectively; while it takes about fifteen years or so for the class teacher to reach the maximum salary, which is rarely more than £150 for men and £120 for women. Little wonder is it that there is predicted a future shortage of teachers in elementary schools. Mr. Kenward had little that was good to say about the suggestion that educational reform should progress by "building downwards."

THE Victoria League, Millbank, Westminster, S.W., offers a prize of £25 for the best design for a banner, which shall be held for a year by that branch of the league which shall have been awarded the best certificate for all-round work during the previous twelve months. The competition is open to all British subjects, and designs are to be submitted not later than October 1st, 1914. Full particulars may be obtained from the secretary.

THE new scheme of evening education adopted by the London County Council is on its trial. Extensive rearrangements and adjustments have been made, and great schemes are in operation to attempt to vitalise the instruction and character of these continuation schools. A memorandum on the teaching of English in evening institutes has been issued. The opening sentences are notable: "Teachers of English in evening institutes have a difficult task before them. The tradition of the past in ordinary evening schools on the whole points rather to methods to be laid aside than gives guidance as to methods to be adopted. Teachers who undertake this subject (or group of subjects) must be prepared to seek out new ways. Each must see to this for himself."

MISS ALYS LUCAS has some thoughtful suggestions on the Montessori system applied to the toys of a very little child in the October issue of *The Educational Times*. For the first drawing outfit she suggests a roll of very fine, smooth cork carpet and coloured chalks, in order to keep safe from fine niggledy work and consequent eye-strain.

TEACHERS and others who are interested in evening-school education should see the handbook published by the Education Committee of the County Council of the West Riding of Yorkshire from the County Hall, Wakefield. Comprehensive schemes and many suggestions which are of general application are a feature of this handbook, which is issued in parts dealing separately with industrial, commercial, house-craft, mining, and rural courses of instruction.

WE have received a copy of the seventh number of *Studies: An Irish Quarterly Review of Letters, Philosophy, and Science*. It is evidently edited and largely, if not entirely, written by Roman Catholics, and we welcome it as another addition to the many illustrations of the modern spirit of free inquiry and straightforward criticism which is appearing among those whom the majority of inhabitants of the British Isles generally regard as hopelessly committed to an obscurantist policy. There is not only a free discussion of the publications in their own body, including, in this number, a review of the new translation of the New Testament, which is beginning to be published, but also appreciative notices of such matters as appear beyond their own communion of matters closely related to, if not part of, the great religious questions of the day.

IN the October number (vol. xiii., No. 7) of *School Science and Mathematics*, articles are published on colloids and crystals and on gas and electric furnaces

for physics laboratory work. The "Chicago geometry syllabus," presented to the mathematics section of the Chicago high-school teachers, is here printed in full; also, the monthly "Problem Department" and "Science Questions" continue to supply very interesting reading.

MR. JOHN GRANT, 31 George IV. Bridge, Edinburgh, has issued his autumn catalogue of new books now to be obtained at reduced prices. The list is comprehensive, and teachers will find mentioned many books which they would like to put upon their own shelves or upon the shelves of the school libraries, particularly in those cases where there is a special library for each subject. The prices are so reasonable that this appears a good opportunity to add to the various collections of books.

### SCOTTISH.

THE sixty-seventh annual general meeting of the Educational Institute of Scotland was held this year in the Synod Hall, Edinburgh. Mr. Hugh M'Callum, the president, in his retiring address, entered a powerful plea for the enlargement of school board areas. The gradual evolution of the educational system and the varied and cumulative evidence that the small school boards are no longer capable of performing adequately the duties assigned to them have convinced both educationists and politicians of the need for adjustment. During the recent debate in the House of Commons on the Scottish Estimates, education was the main—almost the only theme. Fourteen members, representative of both sides of the House, took part in it. The question that dominated the debate was the enlargement of areas, and all were agreed on the need for immediate consideration of the subject. It was recognised that various anomalies and injustices—injustices to individuals and to communities—are due to the retention of the parish as the educational unit. Until this relic of the narrow parochialism of the early 'seventies is swept away it will be impossible to secure equality of educational opportunity for the child or equality of civic responsibility for the ratepayer. Before demitting office Mr. M'Callum nominated Miss Fish, Glasgow, as his successor, a well-earned tribute to the great work of women in education, as well as to the personal qualities of the first lady president.

SIR JOHN STRUTHER'S report for the year 1912-13 on secondary education in Scotland is a most interesting and human document. The Department has come in for a vast amount of criticism from all quarters in regard to its policy of starving out higher education in rural schools. In this report Sir John answers his critics and makes out on paper a strong case for his Department. But then this is a comparatively easy task, for he is in the fortunate position of being both advocate for the defence and judge at the same time. No amount of statistics, however, can get over the plain fact that in many rural districts it is more difficult to-day to get the elements of higher education than it was ten years ago. To offer the able child of the crofter, the fisherman, or the

farm labourer a place in a secondary school which requires residence away from home on a bursary of £5 or £10 is making a mockery of higher education to the poorest section of the community. Such children must receive their higher education within travelling distance of their homes or go without it altogether.

DEALING with the work of the past year, the report states that the results may fairly be said to give every indication of sound and satisfactory progress. The number of candidates presented for the Intermediate certificate and the number of certificates awarded were larger than on any previous occasion. The percentage of passes seems to have reached a condition of stable equilibrium, being 78, 79, and 80 for the past three years. As regards the leaving certificate the number of candidates was slightly larger than on any previous occasion. The percentage of passes was 76, as against 78 last year. The work of assessment, it is stated, has involved a great deal of anxious consideration, and teachers are well aware that this is the case. It is just this knowledge which has secured for these examinations the complete confidence of the teaching profession.

A DEEP and sullen spirit of discontent seems all of a sudden to have seized all classes of teachers north of the borders. For the first time on record the principle of the "strike," sympathetic or otherwise, has been applied in widely separated areas in Scotland, and teachers have downed tools with the approval, and sometimes at the suggestion, of their professional associations. The salary question in almost every instance is the cause of the trouble, the evening-school salary rather than the day school one being in dispute. In some instances boards have met the teachers in conference, and an amicable settlement has been arrived at. In others, the boards have cut the Gordian knot by closing the evening schools and leaving the adult population in educational darkness. Such a policy certainly gives checkmate to the teachers, but what about the higher interests that are at stake? Are they to be sacrificed to the sixpence or shilling an hour that represents the difference between the contending parties? It is scarcely credible that the Education Department will accept the position thus created. School boards are required by law to provide continuation classes if a sufficient number of pupils demand them. If teachers could not be obtained no doubt that would be accepted as a satisfactory reason for not providing classes, but when they can be obtained provided a reasonable salary is offered to them, the Department seems bound to call upon them to do so.

As suggested in the previous paragraph, the spirit of discontent is not confined to primary teachers. At a meeting of the Secondary Education (Glasgow Branch) Dr. Third, Beith, opening a discussion on the question of teachers' salaries, declared that the present scales were scandalously inadequate in almost all districts in Scotland. Enlargement of area would, he believed, do something to improve matters, but he was afraid local authorities had reached the limit of

what could be extracted from the ratepayers, and any attempt to go further in this direction would result in a dangerous revulsion of feeling against education itself. The only hope lay in receiving larger subsidies from the State, with a certain proportion specifically earmarked for the payment of salaries. Resolutions declaring that the inadequate salaries paid to teachers constituted a menace to the educational efficiency of the country, and asking the Department to institute national scales of salaries for all grades of teachers were afterwards passed.

THE report of the director of studies to the Edinburgh Provincial Committee for the Training of Teachers shows that during the year 1912-13 706 students were in training for the general (primary schoolmaster's) certificate, as against 719 last year; twenty-eight for the secondary-school certificates, as compared with twenty the previous year; and 195 for the special subjects certificate, including 159 for domestic subjects. The report directs attention to an important modification in the new regulations for the training of teachers. Hitherto it had been a condition of admission to a training college that all candidates other than those holding a university degree should have undergone a course of training in teaching. In future persons holding the leaving certificate would be eligible for admission to the four years' course without any preliminary teaching, provided their headmaster certified that they gave reasonable promise of becoming successful teachers.

DR. ALEX. MORGAN, principal of the Edinburgh Training College, took as the subject of his presidential address to the Secondary Education Association, "Research in Education." He said that the methods of scientific investigation were now beginning to be applied to the problems of education. In this connection much good work was being done in the psychological and pedagogical laboratories of the leading Continental nations and of the United States. The universities of Scotland had not yet taken their due share in this work, and indeed could not attempt it with their present inadequate staff and equipment. Educational research was taking place at present in three directions—the investigation of the physical, mental, and moral development of the child; the employment of statistical methods; and the application of the methods of experimental psychology to educational problems.

### IRISH.

THE exhibition and prize lists published this autumn as the result of the Intermediate Examinations held in June may be summarised as follows. It should first be stated that the four groups are:—A, English, Latin, Greek; B, English and any two of the following, French, German, Irish, Latin; C, English, and mathematics; and D, English, science, and a mathematical subject. Further, it was necessary this year in each group not only to obtain honours in the two characteristic subjects, but also to obtain honours in two other subjects, which did not count at all towards a prize or exhibition.

BOYS.							
Senior Grade	First Class Exh.	Second Class Exh.	Total number of Exh.	£1 prize	£2 prize	£1 prize	Total number of prizes
Group A	5	5	10	—	—	1	1
" B	3	6	9	4	1	—	5
" C	4	7	11	—	—	—	—
" D	4	7	11	5	5	4	14
Total	16	25	41	9	6	5	20
Middle Grade							
Group A	4	6	10	2	1	1	4
" B	8	10	18	33	8	8	49
" C	5	8	13	3	3	4	10
" D	8	8	16	9	3	5	17
Total	25	32	57	47	15	18	80
Junior Grade							
Group A	10	15	25	16	2	2	20
" B	11	15	26	76	27	7	110
" C	10	16	26	22	10	1	33
" D	11	15	26	21	13	9	43
Total	42	61	103	135	52	19	206
GIRLS.							
Senior Grade	First Class Exh.	Second Class Exh.	Total number of Exh.	£1 prize	£2 prize	£1 prize	Total number of prizes
Group A	—	—	—	—	—	—	—
" B	6	4	10	3	2	3	8
" C	—	3	3	1	—	—	1
" D	1	4	5	1	1	1	3
Total	7	11	18	5	3	4	12
Middle Grade							
Group A	—	1	1	—	—	—	—
" B	10	21	31	7	8	5	20
" C	3	2	5	1	—	—	1
" D	2	1	3	—	—	—	—
Total	15	25	40	8	8	5	21
Junior Grade							
Group A	—	—	—	—	—	—	—
" B	14	17	31	34	1	11	46
" C	9	11	20	6	2	—	8
" D	1	4	5	—	1	—	1
Total	24	32	56	40	4	11	55

AMONG the boys, the number of exhibitions awarded to each group is maintained at the same level throughout, but in prizes the modern language group easily outdistances all the others, and in this group candidates taking Irish as one of their two languages are in a preponderating majority. The science group comes next, leaving the old-fashioned classics and mathematics far behind. With the girls it is the case of modern languages easily first both in exhibitions and prizes, and the rest, especially classics, nowhere. A good deal of dissatisfaction has been expressed with the mode of awarding the distinctions, some of which found utterance at the Schoolmasters' Association (see below).

The annual meeting of the Schoolmasters' Association (consisting of Protestant headmasters) was held on the last Saturday in September. The chief topic of discussion was the proposed Treasury grant of



£40,000, which fell through this year owing to the disagreement of the Catholic headmasters with Mr. Birrell's scheme. Mr. Birrell having stated that his scheme is to be embodied in a Bill next session, and if possible passed through Parliament, the Association reaffirmed its resolutions of last year, in which it expressed its approval of the scheme generally, while making some suggestions as to details, none of which touch any of its principles. The Association is agreed that the position of assistant teachers should be improved, and that in connection with registration there should be a prescribed number of registered teachers in each school entitled to salaries above a fixed minimum, to reasonable notice of termination of engagement, and to a right of appeal against unfair dismissal. There was also much dissatisfaction expressed with the results of the recent Intermediate examinations; the new system of awarding prizes and exhibitions met with considerable disapproval, and it was decided to ask the Intermediate Board to divide the modern language group into two sections, one section containing Irish and the other omitting it. The languages in this group are Irish, French, German, and Latin. It is contended that on the marking, the student taking Irish has a preponderating advantage, and that French and German, the real modern languages, are proportionately handicapped.

In consequence of alterations made by the English Board of Education in its scheme of art examinations, the Department of Technical Instruction has found it necessary to revise the conditions under which it has hitherto awarded the teaching certificates in drawing. It is now proposed to award them on the results of examinations based upon the art courses of the Department's programme of technical school examinations, and to give three kinds of certificates, viz. the secondary-school teachers' elementary drawing certificate, the secondary-school teachers' advanced drawing certificate, and the art teachers' certificate. The Department has issued particulars of the requirements for each of these certificates and of its proposals for dealing with the cases of candidates in Ireland who have already made some substantial progress towards the Irish secondary-school teachers' drawing certificates, and who desire to complete the requirements for them. The Department will hold some examinations in connection with these certificates in February next, and others again in May.

THE Department has also issued in the form of an illustrated pamphlet the programme of the Killarney School of Housewifery for the present session. The pamphlet is in eight pages, with, in addition, seven full-page photographs of the school and its working. The object of the school is to provide a systematic training in cookery, housemaids' and parlourmaids' work, needlework, and laundry work, such as would fit the pupils for domestic service or the care of a home. The course takes one year. The number of pupils, who must be over seventeen years of age, is strictly limited. All particulars may be obtained from the Matron, Killarney School of Housewifery, Killarney.

### WELSH.

THE Swansea Education Authority has now made itself responsible for the training of teachers, taking over the management of the well-known Swansea Training College for Women, which was first instituted in 1872, after the passing of Mr. Forster's Education Act of 1870. This institution was founded by the British and Foreign School Society, with Mr. Alfred Bourne as first principal. The present principal, Mr. David Salmon, has held the post since 1892. The college was opened primarily for teachers in infants' schools, but it was soon found desirable to train women teachers for girls' schools as well as infants' schools. At the time there was no training college in Wales for women teachers. The early provision of buildings consisted of an adaptation of private houses with the addition of classrooms, and the development of the work from 1876 onwards has been remarkable. The total income in 1877 was about £2,160, and in 1912 £6,121. One of the noteworthy features of the college has been the steady building-up of the excellent library of 12,000 volumes.

In 1907 the British and Foreign Schools Society handed over the college to the Swansea Education Authority, and in 1911, this authority claimed the Government grant of £30,000 towards the sum of nearly £40,000, the total cost of the new building, and in that year the foundation-stones were laid of a new Municipal Training College for Women, on a new and commanding site in Swansea, of 11½ acres, to accommodate 120 resident and eighty day students. The college is planned on the quadrangle principle, with internal open courts. Both the residential and the scholastic portions of the building have sunny aspects. There is a well-equipped infirmary. The building is heated by hot water and lighted by electricity. There are ten classrooms, a criticism room, art rooms, with sky and north lights, two drawing-rooms, elementary and advanced laboratories, science classroom and preparation-room, and an examination-room serving also as a gymnasium and singing-room. There are three tennis-courts, a hockey field, and a large playground. The constitution of the college provides that forty places should be reserved for Swansea students, but as that number is not at present forthcoming, it may be noticed that the college is largely available for non-local students.

It is stated that at the recent examinations for entrance scholarships to the secondary county schools in Wales only a small proportion of the candidates offered English grammar as a subject, and the marks obtained by these candidates were, generally speaking, unsatisfactory. The headmaster of one county school is reported to have stated that fewer than a third of the pupils entering his school this term knew the difference between a noun and a verb, and one pupil, on being asked to name the parts of speech, answered, "a, e, i, o, u"! Mr. R. Rhydderch, inspector of schools in the Abergele district, deals in his report with the question of grammar in elementary schools. "We should endeavour," he says, "to train young

children to get the 'feel' of a sentence, and to be able to analyse it into 'subject,' 'predicate,' 'object,' and 'extension of the predicate.' That is all that should be expected in analysis. As regards the parts of speech, if their functions in the sentence are emphasised, and the profitless work of making lists of 'pronouns,' 'adverbs,' &c., is avoided, we shall save our scholars from much monotonous and uninteresting work."

THE Board of Education (Welsh Department) has issued the Regulations for the Preliminary Education of Elementary-school Teachers (1), Pupil-Teacher Regulations (2), Bursary Regulations (3), Student-Teacher Regulations, in force from August 1st, 1913, in Wales and Monmouthshire. The principal changes made have already been announced in the appendix to Circular 57 (Wales), addressed to local education authorities, and have been noted in these columns. Amongst the alterations provision is made to allow a candidate for bursarship or a bursar to be submitted to a short test in teaching in a public elementary school. "As at present advised, the Board do not consider that this period can be allowed to extend beyond a month without causing serious interruption to the pupil's course." With regard to student-teachers, the Board have decided "to take power to recognise as student-teachers on certain conditions, candidates who have not fully completed their qualifying examination," but "the Board will not normally be prepared to approve the attendance whole-time at the elementary school of any student-teacher who is recognised on incomplete qualifications until he has passed his supplementary examination." The prefatory memorandum concludes: "The Board would remind local authorities that it is very desirable that those student-teachers in particular who intend to proceed direct to a training college should be given facilities for keeping up the level of their general education."

### SOME SCHOOL PLAYS.

*The Red Cross Knight.* By W. Scott Durrant. 40 pp. (Year Book Press.) 1s.

*Sir Thomas More.* By Elizabeth F. Matheson. 24 pp. (Village Children's Historical Play Society.) 6d.

*The Absolution of Bruce and The Capture of Wallace.* By Graham Price. 26, 28 pp. (Gowans and Gray.) 6d. each.

*The Changeling. The Golden Goose.* By M. E. Wilkinson. 38 pp. (The Year Book Press.) 6d.

WRITERS of plays for school performance as a rule do not sufficiently hold before themselves a definite policy. It is perceived that the existing material is for one or another reason unsuitable. Teachers then hasten to supply the need with something that may suit the particular caste or occasion they may have in view for the moment, not always considering the place that drama should hold generally in a scheme of education. We have often maintained in these columns what that place should be. At the risk of monotony, let us repeat that (i) the words of the play should be of some intrinsic literary value; (ii) that the subject-matter should be easily correlated with

other school lessons (notably with history or literature); and that (iii) the preparation should involve mental exercise rather than the display of physical gifts. In a word, the object should be not to produce premature actors and actresses, and stage-struck aspirants, but to lay the foundation for future appreciation of drama as one of the arts which add zest and pleasure to the life both of performers and auditors.

Judged by these tests, each of the plays before us has some merit, while no one of them has all the required requisites. We place first "The Red Cross Knight," a skilful arrangement in dramatic sequence of the first book of the Faery Queen. The author, Mr. W. Scott Durrant, who made a similar experiment with Chaucer last year, has not scrupled to interpolate here and there lines of his own to eke out the Spenserian story. Spenser's verse is not so difficult to imitate as might be imagined, and it would task the skill of a well-read person in some cases to distinguish the real from the imitation lines. Nevertheless, we think Mr. Durrant would have been better advised to insert a few speeches of prose here and there, by way of relief to the monotony of Spenser, who is essentially of all poets the least dramatic. His arrangement would, however, make a charming entertainment whether performed by grown persons or children. The whole story of St. George and Una is incorporated into the five scenes, which might be quite simply staged for garden or indoor performance. The stage directions are thoughtfully written, and other useful instructions for costume and occasional music are given.

Next in merit we place Mrs. Matheson's "Sir Thomas More," prepared for, and performed by, the Village Children's Historical Play Society. The author has had the advantage of the society's past experience in finding out just how much may be expected from the children catered for. She has kept closely to the method of other plays of the series, using, wherever possible, the actual recorded words of the characters, and inserting songs and dance by way of relief to the more serious portions. A little more dovetailing of the various scenes might have helped it out dramatically. It stands, however, as a chronicle play, *longo intervallo*, on the Shakespearian pattern, with a total neglect of the unities of time and place, but nevertheless giving a good notion of one of the most attractive personalities in the whole of English history.

Two little playlets on Scottish subjects are composed by Mr. Graham Price, who has had practical experience in stage-managing for the Glasgow Athenæum. There is a trimmer, more professional, one might say, a more theatrical, tone about them than the others. "The Absolution of Bruce" and "The Capture of Wallace" are historical episodes well suited to interest Scottish or even English children, whose imagination is sure to be kindled by these favourite heroes of romance. The language is unfortunately blank verse, the most difficult of all kinds of composition, and, it must be confessed, not altogether successful. It is, in fact, for the most part, blank! Otherwise, Mr. Price has brought out the facts of each episode in such a way as to impress them upon performers. In this respect as in others "The Capture of Wallace" is the better of the two. Both are, however, distinctly above the ordinary level of school plays.

Finally, a word may be said for two simple faery plays in one volume, "The Changeling" and "The Golden Goose," by Miss (or Mr.?) M. E. Wilkinson. They are suitable for children from six to ten years of age.

## THE BEGINNING OF THE MIDDLE AGES.

*The Cambridge Mediæval History.* Planned by J. B. Bury, edited by H. M. Gwatkin and J. P. Whitney. Vol. ii., *The Rise of the Saracens and the Foundation of the Western Empire.* xxiv+889 pp., with thirteen maps in a separate portfolio and four others to replace those of the first volume. (Cambridge University Press.) 20s. net.

It takes the editors four pages to describe briefly the contents of this volume, which covers a large part of the period from 476 to 1000, a period described by one of the authors as "at first sight an epoch of chaotic fermentation in which it is almost impossible to perceive directing principles and settled institutions" (p. 630). Yet our readers should be encouraged rather than dismayed at this description, for though there are undoubtedly many pages in this volume which on perusal will be found a weariness to the flesh, still the very difficulty of the period is a reason for its study; we get some definite knowledge. Though the aim of the writers is generally to put down all that is known, whether of first-class importance or not, they do occasionally pause to give us a general view, and so help us to see the wood as well as the trees, and there are many subjects of our daily teaching that are illuminated in its pages. We learn, e.g., that the contrast between Austrasia and Neustria was not so marked as we have generally understood, and that therefore the rise of the Carolings was not so much a reconquest of Latinised Franks by more German ones than has been generally represented, that the rise of the Arabs in the time of Mahomet was not purely, or even mainly, a religious movement, and that, at least at first, their conquests were not inspired solely by religious zeal. Indeed, they preferred to leave their new subjects with their old religions, because only non-Moslems might be taxed.

We have another illuminating chapter by Dr. Peisker, of Graz, who, in the first volume, gave us an account of Asiatic nomads. His subject this time is the strange and fascinating career of the early Slavs, who were so peaceable that their name supplied Europe with the word "slave." Our notions as to Druids will be cleared up, so far as there can be any clearness on that obscure subject; at any rate we shall not be so glib in our summary account of them. We shall read abundantly on the relations between the Papacy and the Carolingian Franks (though in the later chapters of the book the authors hark back to a word that we hoped would finally be killed by this volume—the word "Carlovingian"), the coronation of Charles the Great receives ample treatment from more than one point of view, and the Donations are made clear.

In one matter the ordinary reader will be somewhat disappointed. There are several references to exploded "legends," but the "history" thus discredited is not given, doubtless from consideration of space. What some of us want would be a volume solely devoted to flat contradiction, with the reasons therefor, of much that we learnt in pre-scientific days. However, the chapter on Spain carefully disposes of the legends connected with the Arab conquest of that country, and we shall be pleased that the story of Gregory's puns, all three of them, is endorsed, and even a fourth is added.

The editors regret in their preface that so much of this volume has been written by non-British scholars. We have ourselves made a calculation of the pages which have possibly needed translation, and though it is fourteen out of twenty-two chapters which have come from foreign hands, the pages thereof amount to only 380 out of the 706 of text. Still, it is

a pity to think that British scholarship was not good enough on this period to supply more. The translation has been well done; indeed, the only chapter in the book which has sentences constructed so as to be difficult to read is by a professor in the United States of America.

The book is well supplied with the necessary helps to its study; there are more than a dozen maps printed separately for convenient use, the text covers 706 pages, the bibliography 110, and the index 67.

## RECENT SCHOOL BOOKS AND APPARATUS.

### Modern Languages.

*Deutsche Stunden.* By V. Krueger. x+150 pp. (Blackie.) 2s.—The author of this introduction to German does not believe in the use of phonetic symbols. It is her experience that "a correct and even a good pronunciation can easily be acquired in a short time if, during all early lessons, the words are always said first by the mistress and repeated by the pupils over and over again." However, she gives "a few preparatory lessons as a basis for correct pronunciation." In these we learn that the second vowel of *lesen* is the same as the first, but shorter; she recognises a difference of quantity, but not of quality, in the two *ö* sounds; she gives a long value to the vowel in French *vu*; she uses the unsatisfactory terms *Kehlaut* and *guttural* for the *ach*-sound and the uvular *r*. The lessons proper are, generally speaking, on familiar reform method lines; but the English rendering of words is supplied, both in the lesson itself and in the vocabulary at the end of the book. Translation from English into German also appears quite early. Minor points noted are: *Gott grüsse dich* is said (p. 24) to be a phrase used in south Germany (it should be *Grüss Gott*); *ausser für* (p. 43) seems to be a rendering of "except for"; *selbstständig* (p. 50) should be *selbständig*; *Konditional* (p. 58) is masculine, not neuter; the genitive of *Konjunktiv* (p. 58) should have *-s*; *Hyazinthen* (p. 71) is one of several misprints we have noticed. The vocabulary has not been selected with sufficient care; there are too many rare words and expressions in this beginner's book. As examples we may mention: *rodeln, Dolde, hub an, Beziehung*. The vocabulary, which is not quite complete, contains close on 1500 words—an excessive amount for a first course.

*Ardouin-Dumaset, La France qui travaille.* Edited by R. P. Jago. 225 pp. (Harrap.) 2s. 6d.—This book contains a judicious selection from the sixty volumes of M. Ardouin-Dumaset's monumental "Voyage en France." In a number of brightly written chapters the author describes such varied industries as *le flottage, la ganterie, la sériciculture, le fromage de Roquefort, and la bijouterie religieuse*. The vocabulary is naturally very extensive indeed; incidentally the learner acquires some knowledge of the geography of France, in which he will be helped by the two maps which form the end papers. (It seems a pity that in some cases, e.g. Brussels, Lyons, Geneva, the English names have been given in the map of France.) The editor has added a few footnotes containing renderings of difficulties in the text, and a vocabulary.

*French Pronunciation.* By James Geddes. xvi+262 pp. (Oxford University Press, New York.)—Prof. Geddes has taken great pains to produce a comprehensive guide to the pronunciation of French, in which, as we gladly notice, he adopts the Inter-

national Association's symbols. He gives a fairly full bibliography, in which, however, German books are not adequately represented; the excellent books by Quiehl and H. Schmidt, for instance, are omitted. Comments are added which often err on the side of leniency. The introduction gives a key to the symbols and some quite inadequate notes on the differences between English and French speech habits; thus, under "vowel differences," there is no reference to the tense nature of the short vowels in French. On the other hand, the sections on the division of syllables are good. The sounds are then treated in detail from the point of view of orthoëpy, but there is no connected treatment of the mode of production, and not a single diagram to suggest the position of the tongue, lips, &c. Elision and liaison are adequately treated, and there are sections on the use of capitals, on punctuation, and even one on conventional forms used in letter-writing, which are surely out of place in a book on pronunciation. There is a very good index of words, with phonetic transcriptions and references to the sections in which they occur, which has been prepared by the Boston University 1913 Class in Phonetics. If Prof. Geddes would only expand his introduction, he would make his book a really valuable aid to the learner as well as a convenient book of reference.

#### Classics.

*Livy. Book I.* Edited by H. J. Edwards. lviii + 232 pp. + map. (Pitt Press Series.) 3s. 6d.—It is most unfortunate in the interests of education that the University Presses will not reconsider their stereotyped form of schoolbooks, for they set the type, and others imitate it, whereas this type makes an attempt to meet the wants of very different classes of readers. We have in the book before us an excellent students' edition of Book I., discussing the problems raised in it fully and in a manner suited to one who already knows a great deal; but with it is amalgamated much that is suited to the beginner only, and much that ought to be done by the pupil himself. Who but a beginner wants to be told that *rem* is the "subject" of Livy's history (p. 79), that *ut* means "how" (p. 82), that *utrosque* means "the two teams" (p. 143), and a hundred other such things? But what beginner even ought not himself to be induced, or at least allowed, to say these for himself, and only told them if he could not? On the other hand, the child who does not know that *ut* may mean "how" can scarcely appreciate the learned notes on primary tenses kept in oratio obliqua which is introduced by a past (85), or *fratres auctores fiunt* (124)? The more advanced student will find both these of value, and we could add a number of other notes that we have marked which seem to be valuable. Mr. Edwards is especially full in antiquities or social and religious history. The note on the Livian classes (178) is a little essay in itself; those on *ficus Ruminalis*, *Faustulus*, *Hercules*, *Ianus*, are learned and clear, with evidence of original work in them; others on Livian or Latin usage are sound and useful. The introduction deals with the problems of early history in a thoroughly competent way. In fact, the students' book is good. But the fact remains that the volume is meant for use in schools; and there is no evidence that the writer knows what a school wants, or ought to want. For the solitary worker, the book is just what he will want.

*Cornelii Taciti Annalium libri V., VI., XI., XII.* With introduction and notes abridged from the larger work of Henry Furneaux. By H. Pitman. lxxiv + text unpagéd + 114. (Clarendon Press.) 3s. 6d.—We

have already noticed the abridgment of the Annals; this book is on the same scale. At this date there is no need to discuss the merits of the original edition, which has long been recognised as the standard edition of Tacitus in this country, and is superior to any we have seen from Germany. This abridgment contains all that the university student can possibly want, the editor having added notes where Furneaux thought them unnecessary for his more accomplished audience. The introduction is admirable, both on history and on language, the text well printed, with good margins—the Oxford text, in fact, reproduced. We ought to add, as in duty bound, that for schools where there is a competent teacher, many of the notes are unnecessary, but they will probably be welcomed by most schools nevertheless.

#### English.

*The Cambridge History of English Literature.* Vol. x. 562 pp. (Cambridge University Press.) 9s. net.—This great work is approaching our own day, for the present volume takes us from Richardson to Junius, and includes such interesting matter as the rise of the novel, the early quiverings of romance, Ossian and the influence of the Middle Ages, the Strawberry Hill epistolarch, and the literature of dissent. As in the other volumes, there are ample bibliographies appended. Mr. W. P. Ker takes the chapter on "Percy," and Mr. Saintsbury that on "Collins," while the admirable essay on "Gray" is written by one whose loss is deplored in the preface, Mr. D. C. Tovey. A full and clear account of Ossianic and Percy performance is still a desideratum, and the average reader takes his views from Dr. Johnson or from the virulent Ritson. Even nowadays people are confused among Yeats, Sharp, and Synge; and the real Celt is apt to be dressed out Anglo-Irish fashion. We are very glad to see the point made so often referred to in these columns in regard to the true reading of the line—

"Awaits alike th' inevitable hour";

but Palgrave is not pilloried for misquoting it, as he should be. The chapter on "Johnson" rightly points out that we know only the more explosive side of him in Boswell, and the making of the man in early days is at present hidden. What Prof. Saintsbury means by saying that the ideas and much of the language of the "Song to David" are taken at second-hand from the Bible is not clear. Surely, except in four stanzas out of the eighty, and then when the quotation is obviously intended, there is a most peculiarly un-Biblical ring over the whole poem. The whole volume teems with interesting lights on well-known names.

*Literary Selections from Newman.* By a Sister of Notre Dame. 210 pp. (Longmans.) 1s. 6d.—There is a selection of this master of style already done, but it is too expensive for the schools. The present little volume is well chosen, and the favourite pieces are here; but it would have been better to omit the few pages that deal with the poetry. The space saved would have allowed something from the "Grammar of Assent," and another piece from "Callista." It is, of course, a pity that the sermons are rigidly excluded. Newman requires all sides to be shown.

*The Journal of English Studies.* September, 1913, to January, 1914. (H. Marshall.) 1s.—In this interesting journal Mr. Robertson takes the brother critics rather badly to task for a most curious error which one would think nobody in these days of reprints would make. Surely it is no news that the A.V. English is at least a hundred years older than

1611; but apparently Sir A. Quiller-Couch did not know it. Every atom of distinction in the English of the parable of the Prodigal Son is to be found in 1525, and no one but a very well-read Biblist could tell you if you were reading from an early Geneva or from the Authorised. Prof. Leonard writes very fascinatingly on Bunyan's poetry, and there is a provocative letter on dialect-infection.

*The Poetry Review*. October, 1913. (Clun House, Surrey Street, London, W.C.) 6d.—An admirable account of Herbert Kennedy, who died at the age of eighteen, just three years ago, is written by S. M. Ellis; the quotations, apart from any statement, would prove the poet. Mr. Pulsifer returns to the charge in "Poetry and the School," and the Poetry Society is determined to let it be known that an improvement in the manner of speaking verse is one of its chief aims. Examinations and diplomas are arranged for; we have often expressed a wish to see reading and speaking taken seriously in the school and on the stage. There are other good papers; but in one there are two printer's errors—singularly bad for a Poetry Society writer.

### History.

*Child-Man in Britain*. By F. Ashford. 170 pp. (Harrap.) 2s. 6d. net.—A well-written and abundantly illustrated history of early man, which would form an excellent addition to the school library. But, so far as we can gather, the book has not been written solely, or even mainly, for the sake of the history. The author has a theory that children should be allowed to live a much freer life than they do now under the rule of nursery and schoolroom. They should be allowed to "live cavily in a cave," and make ornaments for themselves out of bits of copper hammered out with stones, &c. So far we can perceive his intention from words we can quote, but we gather that his idea in general is that children should in their own persons grow through Stone ages and Bronze age to the modern period. We wonder how the experiment would succeed. Our own reflection is that these far-distant progenitors of ours were driven by want to do what they did, and that the modern child, even if inclined to these "savage" instincts, would soon weary of his "play," and come home to dinner, even though he were the lucky inhabitant of a village in the neighbourhood of which caves and wild fruits abounded. But we are in a period of open minds as to the education of children, for we are none of us quite satisfied with our modern methods, and our readers should read this book, if only to help them to excuse, and find a reason for, the "naughty" activities that trouble the schoolmaster.

### Geography.

*New Wall Map of the Forth and Tay*. (Johnston.) Scale, 2 miles to an inch. 12s.—This large half-inch map shows relief by means of seven colour levels for the land and three for the sea. Teachers will find that most of the uses to which a large scale map is put in the geography class-room have been anticipated by the map-maker, and there is an additional advantage, the names on the map are printed a good size. The area included stretches from Galashiels to Montrose and from Helensburgh to Duns. There is little need, by way of directing attention to the good points of this map, to say more than that this map brings out most definitely the lowland route followed by the Roman Wall, the Forth and Clyde Canal, the main road and the railways from Kirkin-tilloch to Bonnybridge. The colour printing is excellent.

*New Contour Map of the Near and Middle East*. (Bacon.) Contour edition, 7s. 6d.; political edition, 6s.—These wall maps cover the area of the Land of the Five Seas, and include the ancient empires from Babylon to Rome, although the latter is incompletely shown. There is a large inset map of Palestine on a considerably larger scale, and the routes of St. Paul, Alexander, and Pompey are indicated by coloured lines. Ancient and modern names are both given. The contour edition gives seven different levels on land and three for the sea, and the colouring is so arranged as to emphasise important facts—e.g., the curve of the contour for 1,000 metres across the district where the Euphrates and Tigris defile into the plain accounts for the situation of the towns arranged in an arc along this curve, and also for the route taken in that neighbourhood by Alexander the Great. The inset map of Palestine shows nine land levels and brings out the relief of the land very distinctly. These maps should be extremely useful.

*Visual Instruction Handbooks*. No. 4. *Canada and Newfoundland*. Seven Lectures prepared for the Visual Instruction Committee of the Colonial Office. By A. J. Sargent. 117 pp. Maps and illustrations. (Philip.) 8d. net.—The care with which the work of the Visual Instruction Committee is being prosecuted marks this volume no less than its predecessors. No matter whether the teacher intends to use the slides or not, he should certainly obtain this little book, which will tempt him to try to include these pictures in the series of views which he uses to illustrate his work.

*A New 12-inch Globe*. (Philip.) With inclined axis, 15s. net; with metal half-meridian, 17s. 6d.—This new globe shows land elevations and sea depths by the layer system of colours; ocean currents are indicated by means of arrows; ocean routes are shown, and the new routes consequent upon the opening of the Panama Canal have been added. The great transcontinental railways are marked by means of black lines. The colouring is harmonious, and the regions of high elevation appear to stand out from the surface of the globe. Teachers who need a globe should certainly give this production careful consideration.

### Mathematics.

*Vectorial Mechanics*. By L. Silberstein. viii+107 pp. (Macmillan.) 7s. 6d. net.—Vectorial analysis is not much cultivated by mathematicians, although there are probably few who at their introduction to it have not felt its fascination. The manner in which it substitutes one brief equation for three cumbersome Cartesian ones, and condenses lengthy differential expressions into *div*, *slope*, and *curl*, raises expectations regarding its value as an instrument of research which on a more extended acquaintance can scarcely be said to be realised. Its potentialities have certainly not been fully explored, but, in spite of the example of Heaviside, Gibbs, and others, mathematical physicists seem to prefer the older and more familiar weapons. This lack of appreciation is partly due to the subject not being learnt in youth, and partly to the lack of agreement regarding notation amongst its leading exponents. The works hitherto published have dealt chiefly with the applications to electric theory. Dr. Silberstein now gives us a discussion of the mechanics of solids and fluids in terms of vectors. The first chapter contains such a sufficiently detailed account of vector algebra and analysis as will enable anyone unacquainted with the symbolism to understand the rest of the book. Heaviside's notation is the one adopted. For the sake of beginners a footnote on a suitable notation for manuscript work is desirable.

The work is in no sense a complete treatise on mechanics, inasmuch as those topics which do not lend themselves to vectorial treatment are excluded. However, a student who carefully studies the text and works through the examples cannot fail to acquire the faculty of thinking vectorially, and we are sure that Dr. Silberstein will earn the thanks of physicists by his very clear exposition of a method of investigation which is at least a remarkable aid to economy of thought.

*Mathematics.* By C. A. Laisant. viii+158 pp. (Constable.) 2s. net.—“There exists in everything a general groundwork of useful knowledge which is necessary and at the same time easy for everybody to acquire whose brain is not in any way defective.” Thus writes M. Laisant in his “Final Remarks,” and the aim of the book is to show parents and teachers how the necessary parts of mathematics may be easily acquired by children who, starting at the age of three or four with the drawing of strokes, will by the time they are thirteen have acquired sound ideas regarding arithmetic, algebra, geometry, and algebraic geometry. These ideas are acquired not by study, but by way of amusement; they are met with in the course of solving interesting puzzles and problems. M. Laisant insists that any effort made must be purely voluntary, and in particular that nothing must be required from the memory. M. Laisant does not suggest that further progress in mathematics is possible without steady and assiduous work, but he insists that the fundamental ideas can be acquired in the way of play. Whether this be so or not, M. Laisant's book will be found very interesting, and is worthy of a place on the shelves of all concerned with the education of young children.

#### Science and Technology.

*The New Encyclopaedia.* Edited by H. C. O'Neill. 1626 pp. (Jack.) 7s. 6d. net.—It is undoubtedly a great convenience to have an encyclopaedia in one volume; but such a volume has necessarily its limitations in size, and therefore in the space which can be devoted to particular subjects. The substantial volume before us, containing more than 1,600 pages of double columns, would perhaps be better described as an encyclopaedic dictionary than an encyclopaedia; for, taking a rough average, we find that there are about twenty entries on each page. It is obvious, therefore, that only a few subjects can receive encyclopaedic description. We have, however, nothing but admiration for the general balance secured by the editor; and most of the subjects to which we have turned seem to receive treatment in proportion to their relative interest. Education, for instance, is given five columns; architecture, ten; Greece, eleven; geometry, six; and France, twenty-five. The volume is a handy gazetteer, biographical dictionary, glossary and guide to human knowledge; and as a convenient work of reference it will not easily be surpassed. The references to authoritative books at the ends of many of the subjects dealt with will be valuable to students who desire more information than can be expected reasonably in a single volume.

*Practical Physics for Secondary Schools.* By N. H. Black and H. N. Davis. 487 pp. (The Macmillan Co.) 5s. 6d. net.—This volume is not a laboratory guide, but a text-book in which the practical applications of physical phenomena are specially emphasised; the title of the book, therefore, may be somewhat misleading. To a limited extent, however, experiments on main principles are suggested. In discussing, in their preface, the limitations of a first course

in physics the authors state that “the chief value of the *informational* side of such a course lies in its applications to the machinery of daily life. Everybody needs to know something about the working of electrical machinery, optical instruments, ships, automobiles, and all those labour-saving devices, such as vacuum cleaners, fireless cookers, and electric irons, which are found in many American homes.” These ideas are successfully fulfilled in this well-illustrated volume. We notice occasional errors; thus (p. 6) the fluid ounce is defined as 1/16 (instead of 1/20) pint; also (p. 83) we were not aware that the final exhaustion of incandescent lamp bulbs was effected by “burning phosphorus or some other combustible in the bulb.”

*A Systematic Course of Practical Science. Book II., Experimental Heat.* By A. W. Mason. 162 pp. (Rivingtons.) 2s. 6d. net.—The treatment is very thorough and apparently accurate. Each of the 153 sections terminates with one or more exercises which, in most cases, are questions inserted to test the intelligent understanding of the preceding experiment. The book is perhaps too long for ordinary school purposes, and a judicious selection of the experiments may be found necessary. Skeleton outlines of the recording of observations are frequently inserted; the author evidently believes in giving to students this very considerable assistance.

*The Age of Machinery.* By A. R. Horne. 208 pp. (Blackie.) 1s. 6d.—This is a most interesting book for young boys, and the excellence of the illustrations is a striking feature of so cheap a volume. The text is well written, and the information appears to be trustworthy.

*Elementary Practical Magnetism and Electricity.* By J. C. Kirkman. 136 pp. (Harrap.) 2s. 6d. net.—This course consists of twenty-four experiments suitable for elementary students attending an evening technical institution. The experiments in current electricity are well chosen and clearly described, and, for the most part, the necessary apparatus is simple. Magnetism is limited to four experiments; the treatment therefore is so brief that the inclusion of the subject in the title of the book may be open to criticism. Electrostatic phenomena are not included.

*Principles of Educational Woodwork.* By W. A. Milton. xiii+352 pp. (Blackie.) 6s.—This book, which is clearly the work of an experienced teacher, consists of three parts, dealing respectively with “Scientific Principles,” “Practical Principles,” and “Practical Work,” the last suggesting a three years' course of graduated exercises. Its general appearance is attractive and the illustrations are clear and admirably adapted for reproduction on the blackboard. The hints on equipment and workshop arrangement are quite sound, while the chapters dealing with materials and with “Science in Manual Training,” although unavoidably scrappy, should serve as a useful introduction to the standard treatises. Much of the treatment—particularly of chemistry and mechanics—is somewhat loose and unscientific; such work is only of real value when associated with and based on experimental science, and cannot be treated adequately in the space at the author's disposal. The introduction to part iii. is noteworthy, and should be read by all teachers of handwork, but the author should have emphasised more strongly the dangers of false, or forced, correlations; some of the calculations suggested are not really necessary. Provided that the “scientific and practical principles” are not dissociated from “practical work” (as may, perhaps, be sug-

gested by the arrangement of the book), and that the exercises are treated as suggestions and not as so many Euclidean propositions to be taken in an invariable order, students intending to become teachers of handwriting will find this book a valuable auxiliary to their training, particularly in preparing for examinations. It is a pity that the title of the book is the same as that of a volume by Messrs. Binn and Marsden, published by Messrs. Dent and Sons, as the works are unlike both in scope and treatment.

#### Miscellaneous.

*Pitman's Shorthand Instructor.* Centenary Edition. xii+329 pp. (Pitman.) 3s. 6d.—This thoroughly revised and improved edition of the already well-known "Instructor" contains more than sixty additional pages and nearly fifty new exercises. The matter has been entirely reset, and the changes that have been made, though not radical, all tend to lighten the work of the student and teacher and to increase the speed of the writer of shorthand. The volume is well and attractively bound, the outlines clearly printed, and the issue forms an appropriate souvenir of the centenary of the birth of the inventor of this system of shorthand.

*Songs of School Life.* Edited by Ernest Young.—These songs, price 2d. each, and published by Messrs. Weekes and Co., deserve mention. They are admirably suited for the "human boy," and should be favourites in the school hall and field, and on school journeys. So far they number three: "A Camping Song," "A Cricket Song," and "A Walking Song."

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Jules Verne, "Voyage au Centre de la Terre." Edited by E. Pellissier. (Siepmann's Elementary French Series.) 260 pp. (Macmillan.) 2s.

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"Une Cinquante de Morceaux de Poésie Française." Collection scolaire choisie par A. E. Delépine. 72 pp. (John Murray.) 1s.

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Hawthorne. (Lectures Scolaires-Elémentaire.) 74 pp. (John Murray.) 1s.

"Direct French Course." With Vocabulary. By H. J. Chaytor. 234 pp. (University Tutorial Press, Ltd.) 2s.

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CORRESPONDENCE.

The Editors do not hold themselves responsible for the opinions expressed in letters which appear in these columns. As a rule, a letter criticising any article or review printed in THE SCHOOL WORLD will be submitted to the contributor before publication, so that the criticism and reply may appear together.

Use of Correlation Coefficients for Subject-Grouping.

In experiments on educational psychology, "correlation coefficients" have been used for some time for comparing the individual abilities of a class of pupils in a given pair of subjects. The writer ventures to suggest that this method of calculation might be adopted with carefully collected class-marks, to indicate the best possible groupings of pupils for instruction in the various school subjects.

As an illustration of the way in which this might be done, Pearson's correlation coefficient is worked out from a set of actual list marks obtained by a set of eleven boys in Form 3a (age about 14½) at mid-summer last. Marks obtained in Latin and French are taken and treated as indicated in Table I. Herein  $x$  shows the deviation of a boy's mark from the average mark in Latin and  $y$  shows the corresponding deviation in French. These values are obtained by subtracting the average mark from the actual mark of the individual. The further calculations explain themselves:—

TABLE I.

Boy	Actual marks		Deviations from average		Product $xy$	Squares	
	Latin	French	Latin $x$	French $y$		$x^2$	$y^2$
A	40	41	(40-37)=3	(41-37)=4	4×3=12	3 <sup>2</sup> =9	4 <sup>2</sup> =16
B	32	36	-5	-1	5	25	1
C	44	42	7	5	35	49	25
D	34	34	-3	-3	9	9	9
E	42	38	5	1	5	25	1
F	38	39	1	2	2	1	4
G	38	35	1	-2	-2	1	4
H	34	35	-3	-2	6	9	4
I	28	32	-9	-5	45	81	25
J	37	38	0	1	0	0	1
K	34	36	-3	-1	3	9	1
(To nearest integer) Average mark	37	37	Totals ... (Σ)		Σ $xy$ =124	Σ $x^2$ =218	Σ $y^2$ =99

Pearson's correlation coefficient  $r$  is given by the formula

$$r = \frac{\Sigma xy}{n \sqrt{\Sigma x^2} \times \sqrt{\Sigma y^2}}$$

which simplifies to

$$r = \frac{\Sigma xy}{\sqrt{\Sigma x^2} \times \sqrt{\Sigma y^2}}$$

Substituting values at foot of Table I  $r$  for Latin and French here

$$= \frac{124}{\sqrt{218} \times 91} = 0.88.$$

In a similar way the correlation coefficients for other pairs of subjects were worked out, and their values are arranged in Table II. To show the correlation coefficient with the subject in italics as basis. Some of the values thus repeat themselves, but the grouping offers a ready means of comparison.

TABLE II.—Values of some of the Correlation Coefficients Obtained.

Subjects	$r$	Subjects	$r$	Subjects	$r$
<i>French</i> and Latin ...	0.88	<i>English</i> and Geography ...	0.43	<i>Arithmetic</i> and Science ...	0.48
" Geography ...	0.52	" French ...	0.31	" Geography ...	0.25
" English ...	0.31	" Arithmetic ...	0.23	" English ...	0.23
" Science ...	0.12	" Latin ...	0.21	" Latin ...	0.01
" Arithmetic ...	0.17	" Science ...	0.18	" French ...	0.17

Note.—(1) Arithmetic used, as all pupils had same paper in this and not in other mathematics. (2) Science consisted chiefly of experimental physics with a little chemistry.

From these values it would appear that in the case of this class at the present stage of their work there is a close connection between abilities in French, Latin, and geography, and some connection between these abilities and those in English, so that of the above selected subjects these four subjects form a group in which the pupils might work together without any marking time. On the other hand, there is apparently no connection between ability in French (or Latin) and that in science or arithmetic (taken to represent mathematics roughly). Hence boys might be cross grouped in sets for mathematics and science.

Space does not permit of fuller details, but it is hoped that readers will similarly attack their own sets of marks—which by preference should be collected with a view to this comparison, and hence marked at a constant standard and given under similar conditions, &c. Certainly Table II. suggests

that in the present case (where no special precautions were taken in collecting marks) the values of  $r$  have definite meaning, and that similar treatment of all the school subjects would lead to instructive results, which might suggest some novel method of subject-grouping pupils whereby they might be more effectively taught.

J. RIGBY.

Central Secondary School, West Ham.

#### A Note on Reading.

IN spite of constant pleas for better reading in schools, the opinion of the secondary-school teacher still seems to be that while he must teach his boys to read aloud with intelligence and ease, he himself need aim at no higher standard, nor even reach the level he indicates to his classes. Writers of text-books and articles in educational journals appear to strive in vain against this view; we need to convince the school world, at large that boys do appreciate and do profit by beautiful and sympathetic reading. I have been allowed to reproduce the following incident—one of the most striking I have come across as yet—in the hope of making a few converts.

The facts are simple. I was present during part of a lesson on English Literature given recently in an elementary school, when a visitor—a total stranger to the boys—read to them some short extracts from English poetry. Towards the end of the afternoon the teacher, who had been interested in the reading and wanted to discover what the boys thought of it, asked them to write him a short criticism in their own words of the stranger's reading. As he was on good terms with the class, he had no difficulty in obtaining the kind of criticism he wanted—crude enough now and then, but wonderfully significant. I have the papers by me as I write, and quote impartially. The boys averaged slightly more than thirteen years of age.

Some of the remarks savour of the "composition" lesson, where the mysteries of punctuation have been taught with due solemnity: "I think he read very well because he stopped where the stops were put." Others are merely conventional. "Good because he puts stress on the right words." Others are brutally condemnatory: "Could not understand what he said. His voice was very low." But the bulk of the answers show a keen appreciation of reading which, though not technically perfect, clearly contained the elements of good reading:

"What he was reading seemed as if it were really happening"; "When a sad piece came he made you feel sad, and when a glad piece came he made you feel as if you were there"; "He seemed to make you feel as though you could hear the wind moaning through the trees as he read it." "Anyone who was there was bound to listen. . . . His tone really explained." "I imagined I could hear the wind whistling through the trees and see the moon rising." (A large number of papers contained words to this effect.) "He made it sound as if it was real, and I felt like as if I could hear a lot more." "He made every word understandable." "He seemed to roll it out." "One could understand every word he said; he seems to make his voice sing."

No alterations (beyond these last italics) have been made in the criticisms. If boys in an elementary school can say such things as these, surely we who receive boys of their age and keep them for five or six years can do things as yet scarcely dreamed of. But we shall never make anything of our pupils' reading until we ourselves learn the value of beautiful speech. Many of us, to quote once more from our boy critics, can be more or less "understandable," but O! to make our voices "sing"!

E. ALLISON PEERS.

#### Junior Geography of Scotland.

IN an article on junior geographies in THE SCHOOL WORLD for October, I find the following statements with regard to my little book, "A Junior Geography of Scotland": "Mr. Frew has a short introduction, an equally short treatment of Scotland in three regions, and devotes the remaining pages to the whole country." I am quite sure that neither the writer of the article nor you yourselves would intentionally misrepresent matters, and no doubt for a brief article the writer was quite content with those impressions which seemed to support the conclusions he wished to draw; but every one of the above statements is directly contrary to fact. The so-called short introduction extends to nearly one-sixth of the entire book, and aims at securing on the part of the pupil that "outlook and comprehensive grasp" the writer deems so necessary. Alike in dealing with surface, soil, build, and other geographical features, my little book treats Scotland regionally, and the number of pages devoted to the country as a whole is very small indeed. The statement, however, of which I think I have most cause to complain is that my little book supplies a "treatment of Scotland in three regions." This is entirely contrary to fact. On p. 72 it is stated that, as a conclusion from what precedes, "Scotland may be considered as consisting of five fairly distinct regions." See also p. 22, where, including the Minch, the regions are given as six, pp. 24, 33, 37, 61, and pp. 73 to 83. I do not wish to complain of being criticised. This is not a question of opinion but of fact, and from the data I have given you can readily satisfy yourselves that the statements made in the article complained of are entirely contrary to fact, and need, therefore, to be corrected.

October 7th.

D. ALISON FREW.

THE introductory pages of Mr. Frew's book are roughly nine in number, out of seventy-nine pages of matter. Mr. Frew's references to pages indicates some haziness in the use of the term region; he appears to regard a region as synonymous with part or portion in one place and yet in the table of contents he refers to three regions, which he names. The rest of the book is a statement of facts about Scotland as a whole taken seriatim under many different heads, such as shape, drainage system, means of communication. The preface states: "Throughout the subject is treated regionally, though no attempt is made to discuss the difficult question of what constitutes a region." Perhaps other readers will be able to discern this regional treatment.

THE REVIEWER.

## The School World.

A Monthly Magazine of Educational Work and Progress.

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# The School World

A Monthly Magazine of Educational Work and Progress.

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SIXPENCE.

## THE LONDON EDUCATIONAL COUNCILS MOVEMENT.

**D**URING the last nineteen years the readers of local London newspapers, and more latterly of the leading metropolitan journals other than the *cognoscenti*, have skimmed or studied reports of the meetings of the Southwark or Battersea or Wandsworth or Fulham or Stepney educational councils, and probably taken for granted that they recorded the proceedings of the education committees of the borough councils of these municipal divisions. Had they inquired, they would have ascertained that these councils were working upon a voluntary, not an official, basis, though to a large extent presided over, organised, and assisted by Government and London County Council inspectors of schools.

The movement for the establishment of these local educational councils was inaugurated by a series of meetings between the teachers and managers of the Southwark district with their then Government inspector (Mr. A. P. Graves) in the early part of 1894. These meetings, which first dealt with such questions as the improvement of school attendance, proving eminently instructive, it was decided to establish a permanent council of education for Southwark, the objects of which should be:— (1) To bring together for the discussion of educational subjects governors and managers of schools, teachers, government and County Council officials, librarians, officers of health, and parents of pupils, and thereby stimulate public interest in education. (2) To focus local opinion on questions of educational importance. (3) To promote social intercourse between all persons interested in education, and generally to further educational progress in the borough.

The Southwark Educational Council has been perhaps in closer contact with the Board of Education than any of its successors. Sir Joshua Fitch addressed it on several occasions, besides acting as its president, and the Rev.

Thomas Sharpe, C.B., the first Government Chief Inspector of Schools, also presided over its counsels, while Sir Robert Morant and Mr. Shepherd, Examiners of the Board of Education at the time, joined in its discussions. It has had, moreover, a long line of distinguished yearly presidents, amongst whom may be named, besides Sir Joshua Fitch and Mr. Sharpe, Dr. Montague Butler, Dr. Edward Lyttelton, and Bishop Welldon, Vice-Chancellor Michael Sadler, Prof. Stuart, M.P., Prof. Adams, Mrs. Sophie Bryant, Miss E. P. Hughes, and Miss Adler.

The Council's executive, aided by special sub-committees, dealt with such questions as the right application of local educational endowments, the acquisition and preservation of children's playing-grounds, and the use of public parks for horticultural and botanical purposes. It arranged lectures on new methods of instruction—for instance, Miss Dale's system of teaching reading, and the association of arithmetic and geometry, lectures on the latter subject being given by Mr. C. T. Millis, principal of the Borough Polytechnic Institute, and Major McKinlay, of the Royal Engineers.

Furthermore, the council was able to secure the erection of the St. Saviour's Grammar School within the Borough of Southwark, and also the preservation of Guy's burial ground and the Falcon Court estate as playing-grounds. The Southwark council also assisted in obtaining from the County Council a reduction of tram fares from the school to the playing fields to children in charge of teachers—thus paving the way for the introduction by the Board of Education of organised games in school hours. In consequence of Mr. Foster's lecture on floriculture for children in school and home the London County Council was prevailed upon to allow space in the public parks for growing plants and flowers for botany teaching.

The council now numbers from 400 to 500 members; its president is Dr. Burge, Bishop of Southwark, whose admirable presidential

address on the training of the citizen was reproduced at length in a recent number of *The Times Educational Supplement*.

The original annual subscription was 2s. 6d., but as the council is now given free quarters in the Borough Polytechnic Institute, and its expenses are practically confined to stationery and printing, that subscription has been brought down to 1s.

It may be here stated that the other Educational Councils since formed only charge the same subscription, and that public elementary and grammar schools and the halls of training colleges have been generally put at their disposal by the authorities concerned.

We have dwelt thus at length on the work of the Southwark Educational Council, because that council was the pioneer of this new educational movement, and in order to show in what directions the activities of new and contemplated councils may be beneficially directed.

Other educational councils were gradually established, the next being that of Battersea and Wandsworth, founded in 1904, and now with a total membership of more than 1,000. This association has had the special advantage of the cooperation of the authorities of St. John's (Battersea) and Southlands training colleges, and the local L.C.C. day training college, and of the heads of the Clapham and Putney high schools, and of the Battersea Grammar School. Above all, its establishment on a sound financial, as well as educational footing has been due to the energy and judgment of Mr. G. A. Christian, the local London County Council inspector of schools, while chairman of its executive committee.

The lectures have been very largely attended, and have covered a wide educational field, while a special feature of the work has been the publication of a local Nature Study Guide by Mr. W. Johnson, a model volume of its kind.

The work of the next formed Educational Council, that of Lambeth, has been for the time being interrupted, but measures are being concerted for its re-establishment in the near future, not improbably by cooperation between the two Boroughs of Lambeth and Southwark.

From July, 1907, an active Educational Council was started in East Islington, under the auspices of the late Mr. J. T. Taylor, Chairman of the Educational Committee of the London County Council, and Dr. C. A. M. Barlow, and the valuable opinion gathered by it on the subject of school hygiene has led to the establishment of a Central Care Committee in East Islington, though in other respects the work of the East Islington Council is dormant. But it is to be hoped that this particular result may lead to the formation of an Educational Council of all

the Islingtons, with a wider educational outlook than that shown by the East Islington body.

Some five years ago Mr. Cyril Jackson presided over a meeting at Toynbee Hall, which led to the formation of the Stepney Educational Council. This meeting was largely attended by teachers of secondary schools, and it is remarkable how the Council then formed has held the scales between the work of the primary and secondary school in a cooperation between the two grades of teachers representing them, which has proved as invaluable as it is rare. It has, moreover, been served by two remarkably capable honorary secretaries, Miss Weekes and Miss Farmer.

Many most instructive addresses have been given before it, such as Mr. Cyril Jackson's on "Raising the School Age," Mr. R. A. Bray's on "The Minority Report of the Poor Law Commission of Inquiry," and Prof. Hayward's on the "Lesson in Appreciation." The meetings are well attended, and the discussions at them are keen and well sustained.

Chelsea came next and also formed its Educational Council under the presidency of Mr. Cyril Jackson, then Chairman of the Education Committee of the London County Council. It has discussed the questions of Art in the Elementary Schools, Child Labour and Apprenticeship, the connection between the School and the Local Library, and, under the excellent direction of Prof. Geddes, "The University: Past, Present, and Future." This Council will probably combine with that of Fulham in the near future.

Kensington and Fulham established their Educational Councils on the same day. Prof. Sadler has given an address to the Fulham Council on "The Present Trend of Educational Thought in England," which has since been printed, and other papers have been read before it by Mr. A. P. Graves on "English and Welsh Folk Songs"; by Prof. Adams on "Education as Empire Building," and by Miss Adler on "Trade Schools and the Trainings of Adolescents." The Fulham Council has, moreover, held large and important meetings with parents of pupils within the Borough, which were addressed with much effect by Miss Margaret Frere, Mr. Cyril Jackson, and other leading educationists. It may be added that the meetings of the Fulham Council owe a great deal to the energy and experience of Miss Lloyd Evans, Principal of the Fulham Day Training College, in whose Hall the Council's meetings are as a rule held.

The Kensington Council may attribute most of its success to its distinguished chairman, Mr. Harcourt Smith, and has covered fresh ground by not only drawing its members

together at Literary, Pedagogic, and Musical Meetings of a particularly practical kind, but also by establishing a more direct connection with the local Borough Council than has yet been achieved by any other Educational Council.

It is not unlikely, however, that the area of the Council's operations may be increased in the near future.

The late Mr. J. T. Taylor, Chairman of the Education Committee of the L.C.C., and his successor in that important position, Mr. Cyril Jackson, have held that these councils may be of great value as local consultative bodies in the London Boroughs, to whom the County Council may turn for expert advice, when dealing with any particular neighbourhood. Mr. Taylor spoke of them as the best growing ground for managers. Mr. Cyril Cobb and Mr. Gilbert are now giving them active practical encouragement, and they are, moreover, beginning to influence Borough Councils to take a wiser, because a less political and sectarian, view of their own educational duties, and those of the school managers whom they appoint.

Finally, Mr. Blair, in a most suggestive address delivered by him before the Fulham Educational Council, thus deals with this important movement:—

How can an educational council like yours fit itself into a position of usefulness towards a system of public education? Your educational council is mixed—composed of lay and expert elements; it is local; and it discusses papers of a general character.

A mixture of lay and professional elements seems to me full of the possibility of much usefulness. As a rule, laymen by themselves scarcely know enough of educational practice to offer useful constructive criticism; on the other hand, the experts by themselves are apt to forget the wide world outside teaching or administration. The layman and the expert contribute two different mental attitudes, induced by two different sets of experience. Between them knowledge should be widened without losing much of its accuracy, and the judgment of the specialist should be balanced by wisdom gathered in other fields of service.

Jealously guard this double element, for the mixed character of the educational council offers possibilities of usefulness, which a lay or an expert association by itself does not contain.

The association is local. So far as the area is wide enough to tend to break down parochial views and the exclusive pushing of parochial interests, the local character of the council is a valuable asset; so far as the area offers obstacles to the view of London, the value of the asset diminishes. There are many local needs which can be served by such a council, but there is also a need of local contributions to the solution of the problems of the whole community.

I suggest that a plan should be prepared for laying before your council exact information as to

the doings of the local education authority. Only the more important subjects need be dealt with. The estimates would form a good beginning. Some six millions sterling are expended annually by the local education authority, and the estimates of this expenditure, with the explanatory memorandum which accompanies them, would, if studied under the guidance of a well-informed leader, form a most valuable basis for building up a knowledge of the system of municipal education. Subjects such as trade schools, central schools, technical schools, or, if you like, the teaching of English history, of modern languages, or of handicraft could follow. The estimates would afford a general view; particular subjects would bring special knowledge. But there must be a considered plan and well-informed leaders.

The criticism of a local educational council, which has made up its knowledge in this way, would be stimulative and of constructive value. There are several thousand members of the local educational councils. If to accurate knowledge the councils added conclusions arrived at after strenuous debate, what centres they would become for spreading accurate knowledge and constructive criticism, worthy of a great city or of a great people.

Such associations would in these ways also produce large numbers of men and women ready to carry on the work of those bodies which are more formally associated with the system of public education.

To sum up—the objects for which these educational councils were established are being largely realised, for they have created a gradually increasing body of intelligent opinion upon educational matters wherever they have been set up. They have promoted a free and friendly intercourse, not only between teachers of all grades, but between men and women engaged in all departments of education who have never before been brought into intimate relation with one another, and lastly, they have liberalised the views of each class of educationists, and led them to a fuller appreciation of each other's ideals, and the practical difficulties which retard their realisation.

### PRACTICAL WORK IN THE TEACHING OF ELEMENTARY MATHEMATICS.

By S. LISTER, B.Sc.

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**M**UCH has been said and written during the last few years about practical work in mathematics, and there has been considerable change in the ideals and methods of mathematical teaching. That the changes have been for good is evident to those who have to deal with actual work in school; interest has been stimulated, and whereas formerly mathematics was voted stodgy and uninteresting by the average pupil, there is now a dis-

tinct and really intelligent interest evident in most mathematical work. I remember being asked by an intelligent pupil during my first term as a teacher of mathematics, after a lesson in algebraic factors, which I felt at the time was somewhat stodgy: "What is the good of it all? How is it going to help me in the future?" This set me seriously to consider whether it would not be advisable to introduce new ideas in such a way that it would be evident that there was some real "live" problem to be solved, and I found that if this was done at intervals, the increased effort and interest were distinctly noticeable. To be too academic in teaching—especially the elementary portions of mathematics—is to stunt future growth and deaden interest. On the other hand, if a new operation or rule is preceded by some practical work or example, the necessity for, and the value of, that operation is thereby impressed upon the mind of the pupil, and he puts forth greater efforts to master it. Moreover, this latent interest, when aroused, seems to grow according to the compound interest law, the rate varying with the age, and appearing to increase towards a maximum. The maximum, of course, varies with the mental capacity of the pupil. The sense of enjoyment at the "discovery" by the pupils themselves of some fact, the importance of which they may only dimly realise, is frequently found. The majority of pupils enjoy anything in the nature of research.

Practical work should, however, always have a definite object in view, and this object should form part of a logical course. It is surely going too far to make the mathematical information obtained a mere incident of the practical work. In one of the special reports prepared for the International Commission on the Teaching of Mathematics<sup>1</sup> we read: "Mathematics come in incidentally, and are learnt as need arises. The various mathematical principles and methods are thus acquired by continually applying them, and the boy learns his mathematics in much the same way that he learns to walk." This would appear to vitiate much of the logical value of mathematics. To be of greatest value as a school subject, elementary mathematics should be developed on a logical basis, and serve as a training in logical processes; or, to quote Fitch's lectures on teaching: "Arithmetic, if it deserves the high place that it conventionally holds in our educational system, deserves it mainly on the ground that it is a logical exercise." Practical work should be incidental to the logical basis of the mathematics' course rather than the converse. When, however,

this principle is observed, and practical work is used to introduce and show the necessity for new sections, and give reality to the subject-matter, it is of supreme value.

The new influence seems to have affected ordinary school arithmetic least of all, and it is still the custom to treat this subject simply as an exercise in deduction. "No very serious effort is yet made to explain or discover the rules; it is usually sufficient if pupils learn the rules, and are able to apply them," is still too often a true criticism. Inductive reasoning is not used to anything like its fullest extent, and it is possible, by introducing practical work and "real" problems, to give valuable training in this form of reasoning. The early use of letters also leads to generalisations in a concise and easy form, and helps to make formulæ "real," emphasising as it does the "shorthand" method of stating rules.

Again, much that is now included in the first year's course in algebra and geometry could with great benefit be included in the ordinary arithmetic course. In the upper forms of elementary schools, and in the lower forms of secondary schools, it would be much better if arithmetic, algebra and geometry were viewed as one composite whole, and all artificial divisions removed. They would, of course, diverge later, though even then there might be much more correlation than there is. Literal arithmetic would then be developed from the beginning in a natural way, and literal examples would form part of practically every set of examples in arithmetic; they emphasise the importance of the nature of the operations rather than that of the actual calculation. For example, many pupils who can work a simple proportion involving concrete quantities, fail hopelessly when the numbers are replaced by letters. The sense of the correctness of the result fails when dealing with literal problems, and the principles and nature of operations become more prominent. Quite young pupils will readily give correct literal generalisations, and provided that an occasional example showing the folly of generalising from too few cases is given, this training is very valuable.

Literal generalisations also provide many examples for practical work. Thus, in obtaining first ideas of solids, Euler's Theorem can be readily obtained by tabulating the number of edges, faces and corners. If the pupil is left to provide all the data for himself by handling the solids (some of which he has made previously in the manual-training shop), he will be doing a real bit of research, and his "joy of discovery" be correspondingly great. Many such examples will suggest themselves to the mind of the reader. It is

<sup>1</sup> No. 33, p. 5.

possible and advisable to establish the form of the expansion for  $(1+x)^n$  much earlier in the mathematical course than is usual, by tabulating the coefficients and the value of  $n$ , and then "discovering" the result. The difference between results established in this way and a logical proof should be made clear; but the discovery of the facts should precede logical proofs, as, indeed, has always been the case in the history of mathematics.

Moreover, these generalisations cultivate what has been called the "low cunning of mathematicians," though it is really a highly cultivated intuitive faculty. It also cultivates the method of trial and error, which is now practically neglected in elementary mathematics. The results of science experiments might often be left for the mathematical class, and treated in the same way, showing incidentally the value of mathematics as an aid to experimental science. Experiments are too often done with the view of verifying laws already stated dogmatically, rather than as a means of discovering them. The lecture should oftener follow the experiment, and not the experiment the lecture.

Arithmetic in particular is still suffering from the lack of discovery both of the facts and of the necessity for them on the part of the pupils themselves. It is rarely that one finds pupils coming into secondary schools with any real grasp of principles, and scarcely any of them can measure a line with a decimal scale. They have often acquired considerable facility in working examples of set types, and it is generally a *revelation* to them to know *why* they have performed certain processes. It is not uncommon to have pupils who have "worked" questions on stocks and shares who do not *know* that multiplication is a shortened form of addition, or that the order of the factors in a product is immaterial. Practical work will prevent the habit of mind that makes this possible. If it is used judiciously to emphasise fundamental processes, and not continued when the necessity for it has ceased, pupils will discover many important facts and principles for themselves that may not have come up explicitly in classwork.

The improvement in the kindergarten work is well known, but why should the system entirely cease when the kindergarten school has been left behind? The improvement in the work on money is distinctly noticeable where model coins are used by the pupils themselves, and yet they are by no means in general vogue. When addition, subtraction, multiplication, division, reduction are, *in the first case*, taught with the actual tokens, the drudgery disappears, and the future work, both in accuracy of detail and method, is greatly improved.

The continued use of the tokens, however, after the necessity has disappeared is liable to develop into mere play and waste of time. The same applies to weights and measures; where the pupil has an actual first-hand knowledge of the commoner units employed, and has actually used them himself, the tables are learnt in a fraction of the time usually required. It should be noticed, however, that the necessity for *learning* these disagreeable elements has by no means been abolished, but children should not be required to learn them until they have used the measures, or at any rate have seen them used. The pupil who has measured the length of a page of his exercise book in inches and fractions of an inch, who knows the average length of his pace, who has measured the school field in yards, or chains and links, will learn and use intelligently the tables of length and area in a minimum of time. Even then, however, there is an appalling waste of time and energy due to our obsolete and archaic system, and even on the ground of educational economy alone there is every need for an early introduction of a decimal system of weights and measures.

The knowledge of the decimal system also suffers greatly from the lack of practical work. Simultaneously with the extension of the graphical abacus to decimal fractions should come the metric system. The pupil who has measured lines to 0.01 of an inch, or to 0.01 of a centimetre, the last figure being estimated, has made a real advance in the knowledge of the decimal system. It is astonishing to what degree of accuracy a pupil of eleven or twelve years will measure; he will, after a little black-board practice with large units, measure lines to 0.01 cm. with comparative ease, provided that eye-strain is not caused by too much of this work being done at one and the same time. The measurement of angles might be introduced here, and the height of the school flag-staff and weather-vane be found by means of a quadrant made by the pupils themselves, and graduated, at intervals of  $5^\circ$  by the less accurate pupils, at intervals of  $1^\circ$  by the more accurate. The necessity for considerable refinement and accuracy is here very obvious.

Multiplication of decimals presents no difficulty if pupils commence by finding the area of a rectangle the length and breadth of which are given in decimals of a unit. With squared paper, the pupil will discover for himself rules for fixing the decimal point.

The treatment of averages for the elimination of error should come early in the arithmetic course, instead of being relegated to one of the last chapters in the text-book. It is an interesting experiment to set all the pupils some practical work (say measure the

angles of a triangle), and enter the result (the sum) for each pupil on the blackboard. The moral effect on the inaccurate pupils is very great, and the accumulative evidence, when the inaccuracies have been corrected by the aid of the more accurate pupils, is overwhelming.

One aspect of weights and measures is often neglected, viz., the connections between the English units themselves, and the connections between the English and metric units. These form excellent subjects for practical work, and, again, can be made conducive to accuracy. The pupil who weighs (or sees weighed) a litre of water is less likely to forget the result than one who simply learns it by rote. Where manual work is possible, a cardboard cube, 6 in. edge, can be made, and its volume compared with a pint measure by weighing the quantity of sand each contains. These two instances are sufficient to show what can be done in this respect. The connections between the different systems are much more important than many of the units given by the text-book; thus, to know that 1 cubic foot contains approximately  $6\frac{1}{4}$  gallons is of much greater service than to know that 8 bushels = 1 quarter.

The law, the asinine propensities of which are proverbial, prohibits the manufacture of the model coins of countries other than those of England and Germany, but even these are of great value, and are too rarely used. Practical work with German model coins forms an excellent adjunct to work on decimals, and paves the way for a knowledge of the French and American systems, all of which, with rough rates of exchange, should be taught in English schools.

The treatment of proportion could be made clearer and more educative by the use of practical work. The unitary method as an introduction should not be displaced, but it does not give a sound idea of proportionality, or a very good idea of a ratio. The usual treatment of proportion leaves the pupil with the idea that "the principle of direct proportion is of almost universal application."<sup>2</sup> Some examples of cases in which proportionality does not apply should be given, e.g., the cost of printing handbills. If the values are plotted on squared paper, the idea of "functionality" will be improved, and the straight line passing through the origin established as a test of direct proportionality. The graphical illustration of inverse proportion also has many useful applications. Again, the proportionality of the sides of similar triangles should be introduced at this stage. There is no reason why this most important fact should be kept in the

background till the subject-matter of Euclid, Book vi., has been reached. If treated in the same way as the angles of a triangle, already mentioned, many useful lessons would result, and inaccuracies, both of drawing and measurement and calculation, be detected and corrected easily.

Graphs also form a useful source for practical work, but they are apt to degenerate into mere plotting of points. Their value for giving a pictorial representation of statistics should be the first aspect introduced, and the daily plotting of some variable quantity should be undertaken early in the course. No graph of this nature should ever be left without the pupils writing down the tale which the graph unfolds; this will do more for ideas of functionality than perhaps anything else. Graphs of experimental results do not in general receive the attention they deserve. For instance, suppose it is desired to find the relation between the circumference and diameter of a circle. Circles of varying sizes would be measured, one by each pupil, and the results for the class collected and a graph plotted. This will again detect inaccuracies, and after the nature of the law is discovered,  $\pi$  will be determined readily. One of the main uses of graphs to the experimenter is to discover the law connecting two quantities, and some examples of this should certainly form part of elementary mathematical training, and be continued at intervals throughout the course. Wherever a graphical illustration will throw a result into bold relief (e.g., simple and compound interest), it should certainly not be neglected, and obtaining the necessary data for the graph will often give considerable practice in calculation.

Graphs, when used early in the course, can be used in connection with multiplication tables with many useful results, e.g., they can be used to give a sounder idea of multiplication and division of fractions and decimals. Moreover, the actual plotting of points for a graph of statistics gives considerable practice in decimals (10 squares, or some multiple or sub-multiple, being always chosen as the unit). The general form of  $y = mx$  and the meaning of  $m$  will be obtained by induction,  $m$  and  $x$  being positive integers. This is extended readily to fractional values of  $m$  and  $x$ , and then, finally, by producing the axes and the line, to negative values of  $x$  and  $y$ ,  $m$  being still positive. Now, using the principle that the order of factors in a product is immaterial, a further extension for negative values of  $m$  is obtained, and the laws of signs verified.

Much of the difficulty with the laws of signs would disappear if multiplication was in the first place treated as a form of addition, and pupils constructed their own tables by this means.

<sup>2</sup> Board of Education Special Reports on Teaching of Mathematics. No. 13, p. 23.



It is easy for pupils, by addition and subtraction, to extend the table for themselves to include minus quantities. The idea is shown below:—

x	4	3	2	1	0	-1	-2	-3
4	16	12	8	4	0	-4	-8	-12
3	12				0			
2	8				0			
1	4				0			
0	0	0	0	0	0	0	0	0
-1	-4				0			
-2	-8				0			
-3	-12				0			

Of course this would be preceded by practical examples with concrete quantities, e.g., A and B paying each other with model coins and I.O.U.'s. The two meanings of the + and - signs are also made clear by entering on the blackboard at each step the operations performed and the amount of money A and B each has. The addition and subtraction of minus quantities should also be used in finding averages, a rough average being chosen, and each of the quantities being expressed as this rough average plus or minus the difference.

The mensuration of areas and volumes should certainly be developed by inductive methods in the laboratory, and the same master should be responsible for the practical and theoretical work in this branch of mathematics. It provides a fund of examples for a logically arranged system of practical work both in the laboratory and in the field. Incorporated as it usually is at present with the elementary physics course, there is little opportunity for applying the results obtained to theoretical problems, and thus making them a really efficient set of mathematical tools. Most of the results are forgotten by the time they are reached again in the ordinary mathematical course, which is not generally until the substance of Euclid, Book xi., has been mastered. If, however, the results have been fixed in the minds of the pupils by applying them early, they form a solid background of facts which is of great value when the solids are treated from a rigidly logical point of view. Again, during the first few terms in a secondary school, most pupils make, in the manual training centre, cardboard models of many of the solids considered, and on this account also it does not seem desirable to postpone their consideration in the mathematical course.

Practical cardboard work is of great value as an aid to mathematics; in addition to the actual making of the solids mentioned above, and the mathematical knowledge required for their construction, models showing that a triangular prism may be split up into three tri-

angular pyramids of equal volume,  $(a + b)^2 = a^2 + 2ab + b^2$ ,  $(a + b)^3 = a^3 + 3a^2b + 3ab^2 + b^3$ , and many other important results, can readily be made.

Sufficient has been said to show that with the exercise of a little ingenuity, practical work and examples of a practical nature can be devised to introduce new ideas and rules, without disturbing the logical basis of elementary mathematics. The great danger is lest practical work should become mere playing with objects, not calling forth sufficient effort and concentration on the part of the pupil, and that his mathematics should thereby become "flabby" and "patchy." The real purpose is to stimulate interest due to the *discovery* of facts by the pupil for himself, and the cultivation of the intuitive faculty due to the inductive methods employed.

The following quotation from "A Study of Mathematical Education"<sup>3</sup> sums up concisely the underlying idea of what has been said above:—

"There is a weakness as well as a strength inherent in that species of evidence that reposes solely on rigorous systematic logic for its establishment. You may assent to each step, yet profoundly mistrust the conclusion; because you have no clear view of the whole. The emotion that accompanies genuine conviction has not been aroused, therefore the effect of logic is transitory. This is a pitfall in all mathematical education. . . . In education, mathematics must rely more upon the frequent introduction of intuitions; both its evidence and educational value can be thereby increased. . . . Moreover, it is impossible to obtain such a perfect rigorousness; the history of philosophy proves it. Therefore, I say, accumulate evidence for your central truths, and constantly draw upon fresh intuitions."

### RIFLE CLUBS IN SECONDARY SCHOOLS.

By P. H. BRILL, B.Sc.

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IN spite of the opposition of those who complain of militarism in our schools, and of those societies which circularise "Education Authorities, those managing schools, and others interested in Education" in the cause of peace, the number of schools with rifle clubs is steadily increasing. The universities and Public Schools have had their clubs and matches for more than fifty years—the Ashburton Shield Competition, for example, dating back to 1861.

The past few years have seen the birth of

<sup>3</sup> B. Branford, p. 42. (Clarendon Press, 1908.)

the movement in secondary schools, and no doubt in the future it will extend so that many elementary schools will have their rifle clubs.

The growth of the movement for teaching rifle-shooting in secondary schools has without doubt been fostered by the encouragement and help bestowed upon it by the National Rifle Association, and there are now 120 schools with clubs affiliated to this association. In 1906 the National Rifle Association widened its sphere of activities by establishing a camp at Bisley with the idea of encouraging rifle shooting among boys at schools with rifle clubs, but without uniformed cadet corps. This camp during its eight years' existence has been the means of bringing schools together in friendly rivalry that would not have met under other conditions, has given to many schools the only opportunity they get for long-range firing, and has given elementary instruction in rifle-shooting to about 500 boys per year.

The attendances at this camp have been as follows :—

1906 ... 339	1909 ... 625	1912 ... 430
1907 ... 562	1910 ... 491	1913 ... 457
1908 ... 630	1911 ... 408	

The fall in numbers since 1909 does not cause alarm to those who have the interests of rifle-shooting in schools at heart. The smaller attendances indicate that schools which were represented in previous years have not attended the camp again owing to the formation of Officers' Training Corps and the consequent disqualification for attendance at this camp. Thus the Boys' Bisley is catering for the schools during the period before they choose to come under O.T.C. regulations. That the work at this camp is on the right lines is proved by the fact that some of the schools which no longer attend it have aimed higher and have entered for the Ashburton. There is also the case of a boy who, after three years at this camp, joined one of the County Associations, and this year figured in the prize lists at the Bisley Meeting.

With the growth of public opinion in favour of instruction in musketry to boys, the number of schools having rifle clubs is bound to increase, and it is to those about to form rifle clubs that the following facts and figures as to working expenses may be useful.

The existence of a school rifle club does not necessarily demand the existence of a school rifle range. Some schools, through lack of suitable space are compelled to do their shooting on ranges belonging to other organisations. Where possible, however, the range should be near the school building or on the playing field. About the expenses incurred in erecting a suitable range nothing need be said

here, as they are not working expenses and vary very much according to whether structural alterations are needed or not. The expert range builder should be called in, and if possible a site in the open air chosen. If the range be situated in the building and be artificially lighted, there will be an absence of variation in the conditions under which firing takes place, with consequent lack of experience to the boys in estimating allowances for light and wind. The cost of lighting the range will also send up both the initial and working expenses.

Naturally the first year's expenses will be greater than in the following years. The initial outlay must be large enough to purchase small-bore rifles, ammunition, targets, cleaning material, and the few tools necessary for small repairs to the arms and target apparatus.

Rifles may be purchased at prices ranging down to 24s., this being the price of the converted Martini-Metford carbine supplied by the N.R.A. to affiliated clubs. The converted Martini rifle can be obtained in the same way for 26s., and gives better results. For very small boys these arms are heavy to handle, and in their interest the War Office miniature rifle at 45s. should form part of the armoury. Expensive rifles should not be bought for general use on the range. The beginner can be taught as well with one of the cheaper rifles as with one costing £3 or upwards. The latter should be kept for match purposes and used only by those who have learnt by experience how to treat a rifle and its sights.

Ammunition for '22 arms can be purchased at prices ranging from 11s. 6d. per 1,000 upwards, this figure being the least that should be paid if accidents from blow-backs, &c., are to be eliminated so far as possible.

Targets made of wood-pulp are suitable for a school range. They are cheap—3s. 6d. per 1,000—and define the shot-hole with sufficient clearness for ordinary school shooting, consequently dearer targets are unnecessary.

Before shooting is actually carried on, instruction in the use and mechanism of the rifle is essential. For practice in sighting the rifle at a target suitable rests are needed. Three broomsticks, an iron ring of diameter large enough for the sticks to be inserted, and a sandbag make a useful and cheap tripod. On the sandbag the rifle is rested and sighted at a target which can be fixed to the wall of the playground. Six of these tripods is a good number with which to work. They should not cost more than 1s. each. Oil, flannel, &c., for cleaning purposes should not cost more than a few shillings per year. Assuming that the cost of providing the range has fallen on the

school authorities, it is natural to expect that they should insist on all boys in the school over a certain age undergoing this instruction as a part of the school curriculum. It therefore follows that this compulsory firing must be free. Once a term, at least, a pupil should do his "term-shoot" at the club's expense. This, if he fires seven shots, will cost the club approximately one penny per member. Ammunition for practice can be sold at the same rate, *i.e.*, a penny for seven cartridges. At 11s. 6d. per 1,000 this works out at a gain of 4d. per 1,000 to the club—a gain that never materialises if defective cartridges are replaced without further charge.

Rivalry with other schools can be promoted by means of postal matches, when signed targets are interchanged and fired at under stated conditions. The publication of results in the school magazine tends to foster enthusiasm for the sport. Inter-form competitions and individual competitions can be run without much expense to the club. In the former no prize need be offered, the desire to hold the championship should be strong enough to produce good entries. In the latter the Donegall Bronze Badge presented by the N.R.A. can be fired for, and other prizes can be bought with the money obtained from entry fees and from the sale of empty cartridge cases. The N.R.A. grant certificates to those making authenticated scores under the supervision of the range instructor. They are eagerly shot for by the boys.

The Imperial Challenge Shield Competition held annually under the auspices of the N.R.A. affords an opportunity for augmenting the income of the club. The prizes, which are in money, are given with the idea of promoting rifle shooting. As examples of what may be done in this way to increase the income of the club, it may be mentioned that in the four years during which this competition has been held three London secondary schools have won £25, £17, and £16 respectively.

These successes have allowed the purchase of new rifles and accessories and have also afforded opportunities for practice at the long ranges with service rifles. The cost of hiring targets and markers, and of ammunition and railway fares is about 30s. for a team of eight boys if the journey does not exceed thirty miles or thereabouts.

A school of 500 pupils, having approximately 300 entitled to shoot (*i.e.*, over 13 years of age) can run its club at a cost of from £10 to £12 per year, this sum including the cost of ammunition, supplied free for the "term-shoot." In London, where so many secondary school boys are compelled by distance to remain at

school during the whole day, the midday break forms a very convenient time for practice on the range.

Unless there is a military instructor on the staff of the school, the working of the club and the giving of instruction on the range must devolve on the master who is enthusiastic enough not to let the school remain without what is becoming almost a necessary adjunct to every educational institution for boys.

## SCHOOL PLAYS.

By T. C. MARTIN.

Lower School of John Lyon, Harrow.

THE choice of a suitable play is influenced by two considerations: one, the character and abilities of possible boys to take parts; the other, the taste or fancy of the stage manager and dramatic coach. The second consideration is by no means of small importance, for often enthusiasm on the part of the man running the school dramatic society brings out to the full all the powers of acting the boys may possess, even if the creation of dramatic talent is improbable.

It is probably safe to say that no plays lend themselves so well for boys' acting as those of Shakespeare, quite as safe as to say that not even the most experienced actor has rendered full justice to the lines of our national playwright.

There is one great advantage that a school dramatic society possesses, that is a sympathetic audience. If, as usually is the case, the play is an annual event produced just before Christmas, parents and friends attend with the spirit of good will well developed, and obviously are present to appreciate all that can be appreciated and to gloss over the defects which may occur. All the same, it is well for the producer to bear in mind the tastes of his audience, and to provide something which is well within the scope of its understanding.

For an inaugural performance a comedy is most suitable, and all the more so if it is one not often presented professionally. To challenge comparison by giving a play soon after it has been staged, say, at His Majesty's, is, in the words of Smith jun., "asking for trouble."

Some five years ago now the above school gave, as its first attempt, a representation in its entirety of *Twelfth Night*—a play which was found to afford boundless opportunities for the budding actor. The women characters are not particularly difficult, whilst the fooling of Malvolio by Sir Andrew Aguecheek and Sir Toby provides an amount of good fun in which boys are naturally adept. The arrange-

ment of the text of the play affords plenty of serious thinking on the part of the stage manager, but is a source of real enjoyment to the enthusiast.

There are many exceedingly useful points one learns by experience, and the following opinions may be of service to any master who is desirous of doing things out of the common rut, and yet who is perhaps somewhat diffident of being successful.

In the first place, two to two and a half hours is a time quite long enough for the performance to last. Boys cannot compete with their elders in the matter of endurance, although they score heavily on the side of interest and freshness. It follows also that the period of rehearsing should not be very long; in fact, four, or at most five weeks, with, say, two full rehearsals weekly for the first two and a half weeks, and then daily during the last week, with a holiday from rehearsing immediately before the dress rehearsal.

If a play entails longer training than this, it is the opinion of the writer that the task is not worth the trouble, in that the work of the school will probably be affected and the boys soon get stale.

As regards the method of training, a good plan is for the master at the first reading, after the parts have been assigned, to indicate in a perfectly general way the characters to be portrayed, and so give the boys the option of studying their parts for themselves, and so form their own ideas. Keeness is aroused in this way, and much real dramatic talent is encouraged. So long as the idea formed by the boy is consistent, meddle with it not. If, for example, Malvolio is conceived as a conceited, foolish fellow, it is unwise to attempt to show any of the finer touches which the student may perchance perceive.

At the rehearsal most attention should be paid to elocution, slow speaking with lengthened vowels and pronounced terminal consonants cannot be overdone. Most boys are only too prone to run all words in one sentence together. When this is not soon remedied, it is a good plan to make the offender finish a word definitely, and then count two before he begins the next word. Ludicrous as this may seem, it generally makes an effectual cure. There is a tendency sometimes to correct indistinctness of speech by encouraging loud speaking which is akin to shouting. It is the humble opinion of the writer that shouting is to be avoided at all costs, for not only does it produce fatigue, but any harshness or accent (and what school is not bothered with the trying evil of a local accent!) is brought out and inflicted on the audience. The avoidance of shouting is particularly important, of

course, in the cases where boys take female parts; but generally the younger boys who impersonate the women have not lost their clear childish tones.

Strange though it may seem, acting is of secondary importance. In this respect Shakespeare is a real friend to boys, for the beauty of his lines, if spoken with all due care as regards rhythm, commands attention from all kinds of audiences.

When dealing with gesture the commonest failing is a slow swaying to and fro of the body while speaking, and in the case of the nervous boy a shuffling of the feet. The latter is often due to a feeling on the part of the actor that he ought to be moving. About the only way to obviate this difficulty is by a strict observance of a kind of maxim, "Walk two or three steps if you want to move, otherwise stand still." And in order to stand still there is the old trick of keeping the left leg taut with the weight of the body on the left heel.

As for the hands, it is as well to give them something to play with, a sword, stick, or roll for the men; whilst the women can either sit with them crossed or play with an ornament. In any case, it is best to tell the boys exactly what to do with their hands, for they are practically untameable.

Other devices for coaching the boy in dramatic art will suggest themselves to all who undertake it, but one should be careful to avoid over elaboration; provided the elocution is good and nervousness is overcome the result need not be feared.

Besides the actual performers, boys should be chosen to undertake all the necessary duties in connection with the running of the play, as, for example, scene-shifters, prompters, &c., who all work under the direction of one boy, the stage manager.

The question of costumes and scenery has also to be considered. It is very necessary that costumes should be worn, for it will take a great deal of fine acting to convince even an audience of parents that the boy in Etons is Falstaff or Shylock. Costumes can be hired quite cheaply now, from 7s. 6d. a night upwards. As regards scenery, it is possible to give quite a good performance before a background of curtains, and perhaps if the time at the disposal of the master is short it is well to let any attempt at fitting scenery alone. On the other hand, given time and a little skill, a few back cloths can easily be painted, adding much to the realism of the play and helping the performers to a great extent by surrounding them with the proper atmosphere.

The total cost of giving one performance is about ten to twelve pounds, including cost of

preparing and fitting scenery. The takings for an audience of 250 people amount generally to seventeen or twenty pounds, thus leaving a balance of approximately ten pounds with which to augment any special fund in the school. That Christmas plays can be made profitable on the financial side is instanced by the fact that the Harrow Lower School sports fund has gained more than fifty pounds during the past five years.

Of the immense educational value such plays are to the boys themselves it is not in the province of this article to state, suffice it to say that a great improvement both in speech and general bearing is noticeable immediately in all who have taken part in the school play.

#### DR. A. RUSSEL WALLACE: PIONEER OF THE PRINCIPLE OF EVOLUTION.

IT is not often that an educational periodical can deal appropriately at any length with the career of a man of science, but the principle of evolution has become such a common factor in modern thought upon all subjects that we feel justified in devoting space to the work of a pioneer of its establishment upon a rational basis. Dr. A. Russel Wallace, whose death on November 7th, at ninety years of age, we regret to record, will be remembered not only as an independent discoverer of the influence of natural selection in evolutionary development, but also as one of the greatest naturalists of the nineteenth century. On several occasions recently a plea has been put forward on behalf of increased attention to the history of science in connection with the subjects taught in schools. The death of Dr. Wallace furnishes a reason for describing briefly in these columns to the history of the inception of a principle which has become current coin of the intellectual realm. An admirable account of Wallace's work appeared in *NATURE* of June 13th, 1912, as a contribution to its series of Scientific Worthies; and to that article we are partly indebted for some of the particulars here given.

Alfred Russel Wallace was born on January 8th, 1823, in Usk, Monmouthshire, of remote Scotch and Huguenot and of immediate English ancestry. His school life was uninspiring, and he owed more of his real education to the cultivating influence of his home in Hereford. At the age of sixteen we find him as a land surveyor in Bedfordshire, also making his first observations on plants; and these early and serious studies in botany, continuing for four years, prepared him for the plant wonders of the tropics. At the age of twenty-one he came to London; and in his

autobiography he says of himself at that time:—

I possessed a strong desire to know the causes of things, a great love of beauty in form and colour, and a considerable but not excessive desire for order and arrangement in whatever I had to do. If I had one distinct mental faculty more prominent than another, it was the power of correct reasoning from a review of the known facts in any case to the causes or laws which produced them, and also in detecting fallacies in the reasoning of other persons.

It was Darwin's "Journal," published in 1845, and read by Wallace at the age of twenty-three, which determined him to invite Bates to accompany him on his journey to the Amazon and Rio Negro, which filled the four years 1848-52. Throughout his whole career as a collector, Wallace had before him the problem of evolution and the cause of the origin of new species in animate nature. Before leaving for South America, in 1848, he wrote:—

I begin to feel rather dissatisfied with a mere local collection; little is to be learnt from it. I should like to take some one family to study thoroughly, principally with a view to the theory of the origin of species. By that means I am strongly of opinion that some definite results might be arrived at.

While at Sarawak, in 1855, Wallace was still pondering over the problem, which was rarely absent from his thoughts; and in a paper written at that time he concluded that every species which had come into existence in nature was closely related to a species which preceded it. This pointed clearly to evolutionary development, and suggested when and where new species would be introduced; but it did not indicate how they could be brought into existence. After the publication of his paper, Wallace was informed by his agent that several naturalists had expressed regret that he was "theorising" when what he was expected to do was to collect facts; nevertheless, he still continued to consider the reason why one species becomes changed either slowly or rapidly into another. Though the cause of the change was unknown, the utilitarian mind considered it more important to increase the size of a collection of birds and insects—of which Wallace himself had gathered nearly nine thousand separate species—than to discover how the various distinct forms had originated. How he was led to the solution of the great problem in 1858 is best described in his own words:—

At the time in question I was suffering from a sharp attack of intermittent fever, and every day during the cold and succeeding hot fits had to lie down for several hours, during which time I had nothing to do but to think over any subjects then

particularly interesting me. One day something brought to my recollection Malthus's "Principles of Population," which I had read about twelve years before. I thought of his clear exposition of "the positive checks to increase"—disease, accidents, war, and famine—which keep down the population of savage races to so much lower an average than that of more civilised peoples.

It then occurred to me that these causes or their equivalents are continually acting in the case of animals also; and as animals usually breed much more rapidly than does mankind, the destruction every year from these causes must be enormous in order to keep down the numbers of each species, since they evidently do not increase regularly from year to year, as otherwise the world would long ago have been densely crowded with those that breed most quickly. Vaguely thinking over the enormous and constant destruction which this implied, it occurred to me to ask the question, Why do some die and some live? And the answer was clearly, that on the whole the best fitted live. From the effects of disease the most healthy escaped; from enemies the strongest, the swiftest, or the most cunning; from famine, the best hunters, or those with the best digestion; and so on.

Then it suddenly flashed upon me that this self-acting process would necessarily *improve the race*, because in every generation the inferior would inevitably be killed off and the superior would remain—that is, *the fittest would survive*. Then at once I seemed to see the whole effect of this, that when changes of land and sea, or of climate, or of food-supply, or of enemies occurred—and we know that such changes have always been taking place—and considering the amount of individual variation that my experience as a collector had shown me to exist, then it followed that all the changes necessary for the adaptation of the species to the changing conditions would be brought about; and as great changes in the environment are always slow, there would be ample time for the change to be effected by the survival of the best fitted in every generation. In this way every part of an animal's organisation could be modified exactly as required, and in the very process of this modification the unmodified would die out, and thus the *definite* characters and the clear *isolation* of each new species would be explained. The more I thought over it the more I became convinced that I had at length found the long-sought-for law of nature that solved the problem of the origin of species.

We have already mentioned that Wallace was influenced by Darwin's "Journal" to take up collecting in South America. His personal relations with Darwin in connection with the principle of natural selection began in 1854, when he was introduced to him in the Insect-room of the British Museum. While living in Borneo in that year, Wallace wrote his paper, "On the Law which has Regulated the Introduction of New Species," which was published in the *Annals of Natural History* in the following year. Hearing that Darwin was preparing some work on varieties and

species, Wallace sent him a copy of this paper and received a long letter in reply, but no hint was given by Darwin of his having arrived at the doctrine of natural selection. Darwin had, however, actually written out a sketch of his theory in 1842; and in 1844 this sketch was enlarged to 230 folio pages, giving a complete presentation of the arguments afterwards set forth in the "Origin of Species." As we have said, Wallace arrived at the idea of the survival of the fittest as the operating cause of evolution in 1858, and immediately sent the outlines of this theory to Darwin, who brought the communication before Lyell and Hooker, and urged that it should be printed at once. Upon their advice, however, he consented to let an extract from the sketch of 1844 be presented to the Linnean Society with Wallace's paper on July 1st, 1858. "The one great result which I claim for my paper of 1858," said Wallace, "is that it compelled Darwin to write and publish his 'Origin of Species' without further delay."

The colouring of animals, as observed in the tropics and the Malayan Islands, was the subject in which Wallace made his most extensive and original contributions to Darwinism. The study of geographical distribution of animals also sprang from the inspiration of the Malayan journey. The natural trend of Wallace's thought as to the ascent of man is first shown in three anthropological essays of 1864, 1869, and 1870, contained in the volume, "Contributions to the Theory of Natural Selection." The papers mark a gradual divergence of his views from those of Darwin; for, in his opinion, natural selection was inadequate to account for several of the physical characteristics of man, as well as his speech, his colour sense, his mathematical, musical, and moral attributes.

Wallace's last work was "The World of Life," published in 1910, when he was in his eighty-eighth year. Five chapters in this work treat on the subject with which his name will be always honorably associated, namely, the distribution of plants and animals; and they included many novel facts and lines of treatment which had suggested themselves to Wallace since the publication of his earlier works. The contrast between the more uniform floras of temperate climes and the richly diversified floras of tropical lands is one of the interesting points discussed; and among the illustrations, extensions, and new applications of the theory of natural selection are discussions of "recognition marks," bird life, bird migration and extinction, and the relations of bird to insect life. We follow in this work the cycle of reflection beginning with adaptation as the great problem, adaptation as fully

explained by selection, and closing with adaptation in some of its phases as entirely beyond human powers of interpretation, not only in the evolution of mind and spiritual nature of man, but also in such marvellous manifestations as the scales of butterflies and the wings of birds.

Wallace's interest in nature grew with his years; and the mystery of its charms appealed to him to his last days. To the biology class of the University of Colorado, which sent him greetings on his eighty-ninth birthday, he replied:—

From the day when I first saw a Bee-orchis in ignorant astonishment, to my first view of the great forests of the Amazon; thence to the Malay Archipelago, where every fresh island with its marvellous novelties and beauties was an additional delight, nature has afforded me an ever-increasing rapture, and the attempt to solve some of her myriad problems an ever-growing sense of mystery and awe. And now, in my wild garden and greenhouse, the endless diversities of plant life renew my enjoyments; and the ever-changing pageants of the seasons impress me more than ever in my earlier days.

In the ninety-first year of his age, and the sixty-fifth year of active service and productiveness, he has gone to his rest; and the nation mourns. Independent discoverer of a stimulating principle in biological thought, and indomitable champion of its claims; apostle of truth and righteousness; comprehensive observer and philosophic naturalist: his name is graven deeply upon the tablets of science. Though death has conquered the body, the spirit of Wallace's teaching is now universal, and by it knowledge will be extended in the generations to come.

#### PUBLIC SCHOOL LIBRARIES.

By S. P. B. MAIS, M.A.,  
Sherborne School.

*"Scientia est potestas."*

IN an age when even your artisan quotes his "Everyman," it seems invidious to quarrel with the libraries of the "intellectuals," but, to judge from one or two schools we have known, a strong protest is needed against common conventions in regard to these purveyors of learning. In the first place it appears incredible to think that there should be boys not allowed free access to such literature as is provided; but it is no unusual case to find in the rules of a school library such a vile clause as "No boy under the Sixth may take any book from this room." What is the object of a library? Is it not to act as an incentive, "to give so sweet a prospect into the way of learning as will entice any man to enter into it"?

Surely every possible opportunity ought to be taken to encourage boys to read from the moment they enter school: is a boy of fourteen who is presumed in class to be capable of playing with tangents and cosines and the binomial theorem, of translating Homer and Virgil, and of appreciating the beauties of the classics, thought out of form to be incapable of reading Stevenson without tearing the book to pieces and generally maltreating valuable literature?

For the life of me I cannot fathom this spirit that is so surprised to find a boy in his early 'teens poring over Keats, Spenser, Chaucer, old plays, Malory, and Charles Lamb, to mention at random a few of the more obvious; nay, and delighting in them.

These pettifogging dry-as-dusts, brought up themselves on a "Verity" edition of Shakespeare, which left them nothing to probe, nothing to let the imagination run riot over, cannot understand the truth of Sir Philip Sidney's wise dictum that the poet indeed truly doth with a tale, forsooth, come unto us, with a tale which holdeth children from play as well as old men from the chimney corner.

Nothing is so piteous as the spectacle of our school library with its wonderful unexcavated treasures beaming from behind their glass cases, with scarcely a vacancy in all the myriad shelves; it is heart-rending, abominable.

A library, then, must be thrown open, free to all: its success judged solely by the barrenness of its shelves: when all the books are out then is your library achieving its end: the fuller it remains the more of a dead letter does it become, the volumes a meal for the book-worm, the room a charnel house of departed spirits, uncared for, unhouseled, unaneled.

But, replies your librarian, suppose we did respond to your fantastical scheme and allow the riff-raff of the lower school to mark our precious tomes with dirty thumbs and sticky fingers, to scatter orange juice and scraps of food between the pages; we thereby only deprive the monitors of a privilege and give to the small boy no gain: it is not good for little boys to read; to which we can only reply that it would be better from every point of view for the smaller people to give up all their mathematics and classics, all their grammar grinds in four languages altogether, and to be taught the glory and wealth of their own tongue, than to grow up careless and ignorant of our own masterpieces; that with regard to the privilege, the privilege to read ought to be accorded to all who wish, and not only to the select few, most of whom have been deprived so long that they are now callous, if not entirely indifferent, to this "privilege."

"Then," continues our opponent, "you

would have us buy books of a lower plane of intellect to suit the palates of the lower school?"

"If by books of a lower plane you mean less critical works and more plain texts, I am with you," say I. Less of the theses on the rise and decline of Attic religions and more of the dramatic works of Marlowe and the prose of Bagehot or Hazlitt. There is something radically wrong with a system that includes a £5 history of the County of Lancaster and excludes Benvenuto Cellini and Kenneth Grahame, half Meredith and all Synge.

We are living no longer in an age of chained Bibles and of pre-Renaissance ignorance: school dramatic societies no longer cling to Shakespeare as their only "safe" dramatist. Bernard Shaw and Wilde, Synge and Sheridan, Goldsmith and Marlowe, each in his turn is receiving his meed from an age gradually wakening to the educative faculties provided by the stage.

Even in public schools (the last resort we are told of a besotted conservatism) Molière vies with Wilde at a prize day entertainment.

And if on the stage, why not in the library? A thorough searching commission should be appointed to all school libraries to see that the librarian is not advocating theological treatises to the disendowment of the more literary section, that too technical a work on Thessalian architecture is not ousting modern drama, that no one subject is seen to advantage to the detriment of all others: the library is not a reference library for certain masters to ascertain certain abstruse points before going into form, but a huge factor in the boy's education: a place where a boy may glean something of the million complexities that control life, a place where he may form his own character and gauge that of others.

And then in the matter of periodicals, why is it that only *The Spectator* of the weeklies and *The Nineteenth Century* among the monthlies are allowed places in so many of these school reading-rooms? Is it a good thing entirely to drive the youth of to-day into a particular political groove? Would it not be better for him to read "the other side" and form his own opinion? A political opinion founded on compulsion or precedent alone is of little use in the twentieth century.

In addition, there is one matter which may be taken as a criterion of the whole. We have heard of schools where the contemporary products of other schools have been expelled from the school library because they formed an incentive for the lower boys to go into the library! "Keep your library bare of periodicals that might interest the middle and lower school and it is performing its highest

duties!" We have no vocabulary with which to argue a point like this. It is all too absurd, too farcical; one thing we do know: such a system kills any prospect of ever turning out men capable of holding their own in daily conversation, in the humaner studies, in any profession requiring sympathy and a knowledge of life (and what profession is there that does not require these?)

It may be answered that boys have their remedies; they may use their house libraries; in most schools the house library may open its shelves and its store of Dickens, Thackeray, Scott, Austen, Bronte, Stevenson, and the lesser novelists to all the house, but the periodicals, even if they were not of so ephemeral a nature, are only for the select few. Besides, neither a nation nor a boy requires training to appreciate the subtleties of *The Sketch*, and other mid-week illustrated papers; the editors of the more flimsy "weeklies" only give the larger bulk of the public what it wants, whereas the type of periodical which we wish boys to read is striving to make the public want what it *should* like, aiming higher, endeavouring to train us to a greater responsibility of our sense of citizenship: it is such papers that every boy should have the fullest chance of reading, and the obvious place for these is in the public library. It may be thought through all this that I am advocating the demolition of all inferior literature, of the expulsion of all novels save the highest, but it is not so. It is something, in existing circumstances, to get a boy to read at all.

What I do advocate is a carefully selected and a quite small house library containing (apart from all the works in "The World's Classics" and "Everyman" series: these seem essential) such works as those of George Birmingham, Kenneth Grahame, Stephen Leacock, Harry Graham, Conrad, Masfield, Mary Johnston, E. V. Lucas, Newbolt, Kipling, H. G. Wells, "Q.," Stewart Edward White; the stock of public-school stories should be short: the public-school story for obvious reasons (anyone who has been educated at a public school will know why and it is useless to try to explain to others) can never be written, and the wild, fantastic rubbish that is put on the market yearly by otherwise quite reputable writers is little short of disgusting.

Then there is the question of the librarian. The post is usually filled according to seniority, and not at all according to ability or an inherent taste for real literature. It is obvious that if the library is to be anything more than a name, the librarian must have culture, must keep in touch with all modern as well as ancient literature, an ardent reader of reviews, continually on the look-out for the best ex-



ponents of the modern trend of thought. He must find time to read all criticisms of new works, and be prepared to introduce all books by freshly discovered authors of merit. For instance, in the choice of school stories he must not stop, say, at Kipling or Vachell, but allow for the more modern genius of such a writer as R. P. Garrod. That is, he must give up a large portion of his time, in the holidays especially, to reading books to see if they are likely to amuse, instruct, or edify the boy mind in the right way, books which he may himself have outgrown, or on subjects in which he himself is not interested or informed.

I have in my mind two lists of books which should be in the hands of every librarian at every school in the kingdom. One is a list of books in English literature that every boy should have read in school. This is published by the English Association to its members, and is divided up into four sections: A, for boys between twelve and thirteen-and-a-half; B, thirteen-and-a-half to fifteen; C, fifteen to sixteen-and-a-half; D, sixteen-and-a-half to eighteen. I should like to confront several of my more literary friends and ask them to tick off as many of these quite well-known works as they have read. I doubt whether any of them would be able truthfully to state that they had read more than 40 per cent. ! Yet this optimistic Association glibly suggests that these are *selected* as suitable for reading in schools and in school hours. No critical works, and, of course, practically no novels, are included in the list, and yet the number of authors suggested is well above 200, and the works mentioned are more than 1,000 !

Now everyone knows that it is not quite likely in any circumstances that a boy could read 1,000 books in his school-days in school, but he could very easily cover the ground (and we are to remember that these are only supposed to be the groundwork, the elements of his literary education; no abstruse works are included; only those which appeal to the intelligence of youth) in his spare time if the library stocked them and his appetite for them was just whetted in class. Think of the influence "The Earthly Paradise" and the early ballads had on you as a child: your thirst for this sort of literature was insatiable: your master read a little of "Burnt Njal" in form: you rushed to the library to get a copy before anyone else could forestall you, only to find that it was not there. You can scarcely estimate your loss; these ancient sagas can never be the same in after years as they are in imaginative childhood; so with Froissart, the Mabinogion, Malory, Hakluyt, and the Polyolbion, and yet there exist libraries un-

equipped with any of these. It is useless to attempt to instil a real love of reading if none of the great books you recommend are forthcoming from the very building which advertises itself as the fountain-head of learning and culture.

To turn to the second list I have in my mind. The Agenda Club, which is doing so much to make people realise their responsibilities and duties to their country, recently sent round a list of fifty books suggested for the public school library Agenda bookshelf. Not *one* is in most libraries, all touch on matters that ought to be near the heart of every thinking English boy. If they were, we should not have John Galsworthy in the *Daily Mail*, and lesser men in the *English Review*, declaiming against the thoughtless snobbery of our "Caste-Factories" and careless pitying of the state of the poor without trying in the least to realise the actual state of affairs. Were such books as Alec Paterson's "Across the Bridges," Masterman's "Condition of England," and Mr. and Mrs. Sidney Webb's works put before a boy, we should see quickly how untrue are the aspersions cast at us that we are careless of the best interests of our poorer fellow-countrymen; at the present time we are careless through ignorance. I cannot believe that we should be so through negligence. If youth but knew life as it is lived at the works of great industrial cities, something of the way in which the casual labourer lives, of prison conditions, of modern socialism, of Mr. Stephen Reynolds' sailor friends and their difficulties, he would certainly realise the debt he owes to the State, and endeavour, so far as in him lay, to ameliorate the condition of those with whom his life work will bring him into contact, not by money, but by personal service.

Every free public library stocks all the works I have mentioned or hinted at, so that the most ragged urchin, if he wills it, can have all the masterpieces of the world at his beck and call; yet we, who vainly imagine that we are the leaders of the world in learning, in the arts and all true education, either are denied access in our childhood to the library altogether, or find that, given the privilege of using the library, it contains none of the books we want.

So what I advocate is not so fantastic after all; in epitome it is that in so far as books are concerned, a public-school library should be as well stocked in poetry, imaginative prose, and sociological works as the ordinary free library, and in so far as ephemeral periodicals are concerned, there might be at least so large a selection of reviews, &c., as, say, the Oxford University Dramatic Society, or "The Grid," or "Vincent's" supplies to its not exclusively

literary members: that the librarian should realise that there is a Liberal party, and that *The Fortnightly*, *The Contemporary*, *Blackwood's*, *The National*, *The Saturday*, *The Nation*, *The British*, and *The English Reviews* are fully as important as the *Nineteenth Century* and *The Spectator*. It cannot be a question of expense. Many libraries do not even rise to *The Saturday Westminster*. Finally, that the librarian should be a man of keen penetrative power and enthusiasm, able to gauge who are the writers of the present that are causing the new Renaissance, who were the writers of the past who deserve still to be read, and lastly that he should not only throw open the doors to all who wish to enter, but may insidiously snare one and all that in the end no building may be more frequented or more popular than the school library.

### SOME POINTS FOR SCIENCE TEACHING FROM THE HISTORY OF PHYSICS.<sup>1</sup>

By F. HODSON, B.Sc., Ph.D.

Headmaster of Bablake School, Coventry.

**I**T might be urged that, while there are so many large issues before teachers of science—for instance, questions of choice among a wide range of natural sciences, questions of equipment and organisation—my heading sounds academic, and my region of activity small and remote.

I have two introductory lines of defence, and more in the sequel. A front line is that I have chosen a topic which interests me; the second, that there has been a good deal written lately on the bearing of history in science teaching; and that shows the question is a fairly "live" one. But if some teachers feel that evolutionary conjectures about recapitulation of race experience have been worked rather hard of late, I will say that I hope to be found taking up a middle rather than an extreme position as to the value in physics-teaching of historical reading and method.

Now, before going further, I want to distinguish three possible ways of making use of history. First, one may teach the history of science as such; secondly, one may become acquainted with the historic order of development, so as to present one's subject in that order; or thirdly, one may read the history of science, and combine it with references to the writings of discoverers, so as to keep in touch with great minds, and with some very instructive historic errors; and generally with the mental processes involved in dealing with all knowledge, especially new knowledge.

<sup>1</sup> Substance of a paper read to teachers attending the Summer Training Course in Oxford, 1913.

Thus we may formulate three questions:—"Shall we teach the history?" "Shall we teach in the historical order?" and "Shall we teach in the light of history?" and they may be answered each independently of the others.

Two rather important papers on the bearing of history appeared in *THE SCHOOL WORLD* for March—one by Mr. Eggar, of Eton, and the other by Mr. Kirkland, of Ely. Mr. Eggar is not, on the whole, very keen about any historical method. He answers my first question for the most part with "No"; my second with "Yes" in mechanics; but he is not certain about other branches. Mr. Kirkland answers the second with a very decided "Yes" for chemistry.

If one could make an inquiry of a large number of practical teachers, I think most would answer the first question with "No"; opinions would be divided about the second. Teachers of chemistry might often favour a historical order. Teachers of physics might find that a "Yes" to the second would commit them to some unexpected decisions. Thus all the *Principia* comes before the simplest treatment of heat or the bare sight of a voltaic cell.

For my own part, I do not wish to commit my hearers to the teaching of the history itself; and no doubt the historical order is to be used with caution. What I do hope is that a fair proportion of teachers may be led to agree that a study of the history of physics will suggest excellent ways of choosing and discussing class-room topics.

There is always the assumption in my mind that the backbone of most of the boy's work in physics is laboratory work, the carrying out of his own experiments; and if I do not elaborate this point, it is because I assume science masters and mistresses are nowadays accepting it without further discussion.

I turn now to one or two general considerations. Teachers as teachers should have, I think, some sense of the historic order; they should all know a little about the history of Europe generally, and of education in particular; and then, given a time scale of that sort, the teacher of physics will be very ready—for one thing—to fit the history of his physics to history in general; and note the course of the influence of empirical thought and experimental work on the development of thought in general.

I hope it will not be questioned that we ought to aim at a certain solidarity in human thought. In these days of multiplicity of studies it is a very hard thing to achieve. When one asks for solidarity of thought, one is of course not asking for encyclopædism in the individual. One wants less than that: but also more. For instance, modern pro-

gress in electricity should not only be regarded as a triumph of specialist-discovery, and an aspect of the progress of industry, but also as an achievement of thought. It is a part of the history of Europe and European thought just as much as the writings of Goethe, or the Oxford movement, are part of the history of Europe and European thought; and the educated person should have some notion of the orientation of the one relative to the others.

Those who are interested in getting a synthetic view of modern thought should read J. T. Merz's "History of European Thought in the Nineteenth Century." The volumes dealing with scientific and with philosophic thought are available, and are fascinating reading. The volume on religious thought is still to come. This writer has a very remarkable acquaintance with the mathematical, scientific, and general literature of England, France, and Germany; and it may be safely said that the book will remain a classic in its own domain.

Now it is not only true that the reader of the history of his science will tend to get a synthetic view of human thought; he will tend, I think, and his pupils will tend to get a genetic view of his own branch; and will be more ready to accept new and progressive elements than will those who have learned to regard knowledge as an elegant and static whole.

But, to come back closer to the class-room, I should expect a man's reading in the history of physics to affect his way of looking at the psychology of discovery and at the growth of new ideas in the minds of his pupils. I should expect it would suggest to him interesting variations of stock experiments that might otherwise get a feeling of routine about them—a feeling than which nothing is more ominous. I should expect that it would constantly lead him to supplement the condensed outlines which the smaller text-books provide; not by introducing more advanced mathematics or more refined experimental corrections; but by showing the play of mind on the question as it was in the unique stage when the ideas were really nascent. Very often, too, an experiment can be thrown into a form—bringing out the original conditions, and the way a problem was solved—which makes a clearer appeal to the mind than an experiment "with all the latest improvements." Not always. It is for the teacher to judge.

One of the easiest branches to treat historically is mechanics, because the subject has been very thoroughly worked out. Thus Cox has written a text-book of mechanics (Camb. Univ. Press) which is based on Ernst

Mach's own historical writings; but is much easier, and is well illustrated, and is a good example of the added interest that comes from the history of the subject.

I should like to take as an illustration of the value of history Newton's gravitational generalisation, at the risk of boring those of my hearers who are fully posted up in the matter. Newton stated, as you know, three compact laws of motion to provide a groundwork for the study of dynamics. Those of us who began mechanics twenty years or so ago may have had these statements put before us as the great man's *obiter dicta*, supplemented, maybe, with a few illustrations as to books on tables, or perhaps with the statement that the prophetic achievements of the *Nautical Almanac* are the best confirmation of these laws. What might well be added is something to this effect: Galileo had distilled from his experiments on inclined planes an ideal body moving under no outside influences, and then moving with constant speed. That was quite unlike the mediæval idea of a body moving under no external influence; such a body was supposed—say, in the fifteenth and sixteenth centuries—to come gradually to rest by virtue of its own fatigue. Thus if a man named Isaac Newton, possessing Isaac Newton's ability, had lived in 1500, he could scarcely have dreamed of stating the first law of motion, because the ground had not been cleared for him. In this respect Newton was a man of his time, and owed much to Galileo. Huygens, who worked in the light of Galileo's results, showed how the speed of a body, moving circle-wise on a string, could be connected with the pull in the string. As we should put it nowadays,

Huygens knew that  $F = \frac{mv^2}{r}$ . Huygens published his results on this subject in 1673; and when he sent a copy of his work to Newton, Newton wrote to him that this was a handy formula for calculating the amount of the gravitational attraction of the earth on the moon.

Newton first occupied himself with the business of testing the inverse square laws in this way at his house at Woolsthorpe, when, in 1665, he was having a quiet time, as all Cambridge had "gone down" on account of the plague. The idea of a gravitational attraction inversely as the square of the distance was "in the air" at this period. Newton's ingenious first contribution consisted in his imagining the possibility of calculating a ratio to connect up a moon problem with a surface of the earth problem (an "apple" problem); in his having the idea of bringing in the accelerations of the moon

and the apple as terms in a ratio. He knew that the moon was about 60 earth-radii from the centre of the earth; and so, on the inverse squares hypothesis, the falling acceleration of the moon ought to be  $(\frac{1}{60})^2 = \frac{1}{3600}$  of the falling acceleration of the "apple." And his calculations from the length of the month showed a sufficiently good agreement.

This was a tremendously interesting result. Having arrived at it, he locked up his notes in his desk; and left them there for twenty years!—Why not, at least, publish them in some preliminary note? What did he distrust about them? Various answers have been given to these questions. One is that the assumed radius of the earth was not accurate enough. But the more probable reason is that Newton realised that underneath the calculation there was one very serious assumption—the assumption, namely, that a large sphere like the earth acts on a small body situated near its surface as if it—the earth—were equivalent to a heavy particle of the same weight as itself, situated at its own centre. This was by no means proved in 1666; but about 1685 Newton succeeded, to his own surprise and great satisfaction, in establishing it. So was shown that his moon calculation was justified; and he then returned to the main subject, the elliptic orbits of Kepler's planets, and finally overcame all the mathematical difficulties of showing that these paths also could be traced out by a body moving under a central attraction; and, moreover, that the attraction must be inversely as the square of the distance, and that then Kepler's second and third laws were also satisfied.

No doubt numbers of teachers do find time to support and enlarge the study of the laws of motion with an acquaintance with Newton's planetary work; but I think in many cases more might be made of it. I know boys may be keenly interested. Some seven years ago I went over this work with a small division of boys of average age about fifteen and a half to sixteen; and recently I met one member, just finishing his fourth year in Oxford. He volunteered the statement (he was really a chemist himself) that the part of physics that had interested him most was the course in which we led up to Newton's generalisations!

I turn now to some illustrations of historic errors, and reasons for studying them. The reader of the history of physics will soon be struck with the fact that very erroneous opinions have been held by the leaders in the past. Now the study of *error* is a fertile region. You constantly want some sort of background against which to throw up the features in your foreground of truth; and if

you need instances of possible errors, it is often well to take such as have been indulged in by comparatively competent authorities, rather than to invent, on the spur of the moment, what is *not* the case, or than be solely guided by the errors of one's own class. As I have taken as illustration of a brilliant passage in mechanics Newton's work on gravitation, so I may refer in the sequel to a couple of his conspicuous errors.

First, a word about theories of light. The fact that Newton espoused the emission theory of light, over against the wave theory as befriended by Huygens, is a very trite and overworked illustration of the hindrance that may be caused to the progress of science when the weight of authority is brought to bear on the wrong side. It is perhaps interesting to mention that Goethe—who was a free lance in the region of physical optics, and produced in his *Farbenlehre* a book which I suppose no physicist could read without grievous impatience (I have not read it)—attacked Newton for his emission theory of light; and particularly objected to the idea of seven sorts of particles to produce the spectrum as analysed by Newton. In this respect, at least, we should nowadays feel that Goethe had made a point. Goethe laid stress on the fact that although the slit and prism was said to be a contrivance for resolving light into its simplest elements, yet in his view it was trying to explain a simple phenomenon in terms of a complicated one.

It is rather interesting to note that in the most modern writing on physical optics the subject of unpolarised white light is treated in a way which gives some countenance to Goethe's naïve efforts of a hundred years ago. If, for instance, you read Schuster's "Theory of Optics," you will find that the wave or periodic structure of light (that conception which, during the nineteenth century, triumphed over Newton's corpuscular view) can only be predicated of light which has, so to speak, been doctored. Any arbitrary series of electromagnetic impulses coming along on the far side of your slits and polarisers and prisms will give you the periodic structure in the region where you measure the wave length.

You will perhaps wonder why I am now slipping into the minutiae of the physical optics of the present day. It is because I want to carry the application of the historical study of error a little further. I mean that when we, as modern men of science, have used the light-corpuscle as a stone to throw at Newton, when we have done this justifiable thing, we should reflect that whereas Newton lived, let us say, in a conservatory, we dwell in a very Crystal Palace of glass, saved to

the world at great expense; and that we should step delicately in the company of our friends the philosophers and men of letters. We need their help; and we may properly be careful of their criticism. We cannot do without humility any more than we could dispense with errors, historic and other, in the progress of thought.

Before leaving the matter of errors, I will quote briefly two other cases which I want to hang together.—It is fairly well known that Newton came to the erroneous conclusion that, in different kinds of glass, dispersion was proportional to mean refractivity; and therefore that an achromatic lens was an impossibility. This conclusion led him to concentrate attention on reflecting telescopes; and the interest in and development of refraction was no doubt retarded through his authority. A more obscure error, in the department of heat conduction, occurs in the first study of transfer of heat along a bar. Amontons (ca. 1700) attempted to find the temperature of a flame by heating with it one end of a bar of such length that the far end was just at the temperature of the air; and by making the assumption that the excess temperature at any point along the bar was proportional to the *distance from the cold end*. Both these errors depend essentially not in making a first assumption of simple proportionality between two variables—for that must constantly be done—but in failing both to present to oneself the limitations of the assumption, and in failing to test a reasonably large number of the most various and extreme cases available, with the view of correcting the assumption if necessary.

The next illustration to which I will refer is one of many which will bring out the point that a good deal of progress in science has been, and can be, made by amateurs occupied with homely contrivances. In physics this may be less true now than formerly; but there is an element of truth in it still. In 1737 Benjamin Franklin believed that lightning was due to "the inflammable breath of pyrites, which is a subtle sulphur, and takes fire of itself." In 1749 we find him enumerating all the points—he gives twelve—of agreement between lightning and the electric spark. He wondered whether lightning would be attracted, and drawn off by points, like the electric fluid in his jars. Then he designed an insulated lightning conductor which was to be placed on the top of a high steeple, so that a man in a little sentry-box connected with it could be electrified if the experiment worked. This proposal was communicated to the Royal Society, which at first received it with derision. Even the Royal Society has been hard to move sometimes! Franklin

thought that no building in Philadelphia was high enough to do the experiment with the sentry-box. So he set a lottery on foot to raise money to build a spire of suitable height! The story of how his expected results were anticipated in France, and how, in following up to confirm the French conclusions, he substituted a cheap kite for the expensive church tower, may be read in Cajori's "History of Physics." This book, by the way, may be recommended to English readers as a useful introduction to our whole subject.

The last piece of history to which I will, very briefly, refer deals with the work of Galvani and Volta at the very beginnings of current electricity. Galvani first became conscious of a connection between electricity and muscular contraction by accident. It was observed, during a class or lecture concerned with some other matter, that when a student touched with a knife the sciatic nerve of a dissected frog, at a time when a friction electrical machine on the same table was giving sparks, that violent contractions occurred in all the limbs.

Thus the first stage was not, all at once, a case of discovering a "new kind of electricity," but merely of observing a case of induced high-frequency current producing a physiological effect which, when produced by direct discharge, was not unfamiliar. His next step was (for he now followed the matter up) to see whether the newly-studied atmospheric electricity had these effects. He found positive results, under cloudy and electrically stormy conditions, and then tried to find smaller effects due to normal conditions of atmospheric electricity in fine weather. He waited long, with frogs' limbs hung by hooks to iron railings, to see whether contractions occurred. He found them fairly often; but apparently they stood in no relation to the state of the atmosphere. Then he took his contrivances indoors, and laid the frogs on an iron tray, with the hooks (which pierced the spinal cord) touching the tray. He found the same contractions. The experiment under these conditions first suggested to him the possibility of an *animal electricity*.

Galvani made a number of other experiments, sometimes using the two sorts of metals on which Volta laid the emphasis, sometimes using one metal only. He knew that if tissue and one metal only formed a circuit, the effect was uncertain; but he also knew that he had produced contractions when preparing dissections with glass knives. Such effects were cases of physiological electricity pure and simple (any modern physiologist could tell us a great deal about electrical dis-

charges produced by wounding animal tissue, but I am ignorant of these matters); and that tended to make Galvani shut his eyes to the point urged by Volta, namely, that in the two-metal case the animal tissue could be replaced by a little dilute inorganic acid, and the effects be still forthcoming. So Galvani and Volta developed opposite views, and were sharply divided in defending rival theories of the new electrical effects, each one minimising the importance of those phenomena which were essential to the other side. The immediate developments of the inorganic or Voltaic phenomena in the hands of Nicholson and Carlisle, Davy, Ampère, Faraday and others pushed for a long time into the background the independent physiological phenomena. These, however, were none the less valid; and came into their own in due course. The study of such cases throws light on the psychology of scientific controversy; and so on the nature of disputes in general.

To sum up, I have tried to show that in general there is value for the teacher in historical reading. I will not say that it must suit every teacher; but I think it would suit many. I have tried to give instances showing that insight may be obtained into the psychological processes of both discovery and learning. I should prefer to minimise the distinction between these two processes.

The instances and illustrations I have taken have covered:—The stimulus of watching the progress of a piece of brilliant work (Newton); the psychological and moral value of an acquaintance with errors, distinguished and obscure; the interest of going back to homely and primitive apparatus, and to the efforts of private experimenters; and the case of separating superposed effects, each of which, when emphasised, seem to make one man right at the expense of another.

In the history of our subject are hidden away rich stores of material which cannot fail to attract and stimulate many teachers who come across them.

#### PERSONAL PARAGRAPHS.

**T**HE REV. R. E. SANDERSON, D.D., died on October 24th at the advanced age of eighty-five. Canon Sanderson went to school at Uppingham, proceeded to Lincoln College, Oxford, where he was Crewe Exhibitioner. He was ordained in 1851, and shortly afterwards was appointed headmaster of Bradfield. In 1862 he went to Lancing as headmaster, and remained there for twenty-seven years.

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THE death is announced of Mr. Gustave Loly, Principal of Quernmore School,

Bromley. Mr. Loly graduated in honours in French at London University in 1885, and was associated with Mr. Gibson in preparation of pupils for examinations; the scholars of Quernmore are well known, and the efficiency of the school is generally recognised.

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MANCHESTER HIGH SCHOOL for girls has just lost one of its founders, Miss Gaskell, who had sat on the governing body since the foundation of the school. Miss Gaskell, who was seventy-six years of age, was the daughter of Mrs. Gaskell, the novelist.

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DR. C. H. LLOYD, Precentor and Musical Instructor at Eton College, will resign his post at Easter. Dr. Lloyd was educated at Rossall and Hertford College, Oxford. At Oxford he was first president of the University Musical Club. In 1876 he became organist of Gloucester Cathedral, and in 1882 organist of Christ Church, Oxford. He was appointed Precentor and Musical Instructor at Eton in 1892, and old Etonians will learn with regret of his resignation.

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MR. P. S. BARLOW, Oundle School, has been appointed headmaster of Hastings Grammar School.

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MR. D. R. MACLEOD received at the hands of the Dean of Canterbury a presentation from the governors, staff, and old and present boys of Strand School. The Dean and Dr. Headlam represented King's College and Mr. Parsons and Dr. Buzzard the former governors. Mr. Braginton, the former headmaster, and Mr. Henderson, the present headmaster, spoke of Mr. Macleod's loyalty and judgment; Mr. J. V. Thompson of the very pleasant relations with his colleagues, and Mr. Christy of his remarkable sympathy with the boys.

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MR. L. W. TAYLOR, of Bournemouth School, has been appointed headmaster of Darlington Grammar School. Mr. Taylor was educated at Warwick School and Oxford, where he took second-class honours in history in 1901. From the University he went to the Grammar School at Stratford-on-Avon as a master, and was appointed to Bournemouth School in 1904; in 1906 he became second master.

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MR. PHILIP WOOD, whom Mr. Taylor is to succeed, is a graduate of Edinburgh University, where he took first-class honours in mathematics. After four years at Merchiston Castle School and three years at Daniel

Stewart's College he became headmaster of Darlington Grammar School in 1877. The school at once grew rapidly and outdistanced all competitors, and has continued to be the centre of educational activity in the district ever since. Mr. Wood was recently chairman of the Headmasters' Association, where he presided with his well-known courtesy and efficiency.

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THE Governors of Emanuel School, Wands-  
worth, have appointed Mr. Shirley Goodwin,  
headmaster in succession to the Rev. H. B.  
Ryley. Mr. Goodwin proceeded from Uni-  
versity College School, London, to Balliol  
College, Oxford. He has been Rector of  
Glasgow High School since 1909, a position  
to which he was appointed at the early age of  
twenty-nine.

\* \* \*

THE City of London Schools Committee  
selected to go before the Court of Common  
Council as candidates for the appointment of  
Headmistress of the City of London School  
for Girls, Miss Edith Archibald, M.A. London,  
Classics, Cambridge Classical Tripos, classical  
and form-mistress of King Edward's Girls'  
High School, Birmingham; Miss Ethel Strud-  
wick, M.A. London, Lecturer in Latin, Bedford  
College, and Miss Edith Willis, Cambridge  
Mathematical Tripos, B.A. London, M.A.  
Dublin, Senior Mathematics Mistress, Man-  
chester High School for Girls. Miss Strud-  
wick was appointed; she has lately been head  
of the Department in Latin and resident tutor  
of a hostel of Bedford College.

\* \* \*

MR. CHETTLE, formerly headmaster of the  
Stationers' Company's School, was presented  
with a silver salver and a silver loving cup,  
subscribed for by a large number of old boys.  
To mark their appreciation of his services to  
the school, the Court of the Stationers' Com-  
pany has made Mr. Chettle an honorary  
Liveryman of the Company, an unusual  
honour held by only three others.

\* \* \*

MR. CLOUDESLEY BRERETON has been in-  
vited by the Modern Languages Association  
of Germany, as the English guest of the year,  
to give an address at their annual meeting at  
Whitsuntide, 1914. Mr. Brereton has recently  
issued a book entitled "Studies in Foreign  
Education." It is rendered vivid and readable  
by his exceptional knowledge of the two  
countries.

\* \* \*

A MEMBER of the University of Oxford  
and one of the University representatives  
on the City Council is to be the Mayor

of the City. The Rev. W. E. Sherwood,  
of Magdalen and Christ Church, though  
not actually born in Oxford, was an Oxford  
boy. He was educated at Magdalen College  
School, and won a junior studentship in mathe-  
matics at Christ Church. In 1875 he returned  
to his old school as mathematics master.  
After three years he became principal of  
Sidney College, Bath, and when that college  
was merged into Bath College he became  
chaplain and mathematics master. In 1888  
he again returned to his old school, Magdalen  
College School, as headmaster, and held the  
office with great success for a period of twelve  
years.

\* \* \*

MAGDALEN COLLEGE SCHOOL has this year  
been inspected, for the first time, by the  
Inspectors of the Board of Education. Dr.  
Warren, the President of Magdalen, speaking  
at the prize distribution, said that the school  
had maintained itself very well. It still had  
a very definite place, and possibly with some  
modifications it had its opportunity, as a school  
of moderate size, of being conducted distinctly  
on public-school lines. Dr. Warren directed  
attention to the necessity of teaching boys to  
think for themselves as well as to act for  
themselves.

\* \* \*

MR. WALTER MCBRETNEY, headmaster of  
the Storey Institute, Lancaster, has been  
appointed headmaster of the new Secondary  
School and Technical Institute at Wallsend.

\* \* \*

DR. A. RUSSEL WALLACE, who died on  
November 7th, at ninety years of age, was for  
a year teacher in a private school—the Collegiate  
School—at Leicester; and in the story of  
his life he had nothing but good to say of the  
experience thus gained. It was while he was  
at Leicester that he became acquainted with  
H. W. Bates, whose father was a manufacturer  
in that town. Through Bates he derived a  
taste for the wonders of insect-life, and with  
him he afterwards made the memorable  
journey to the Amazon to collect natural  
history specimens. At Leicester, also, Wallace  
read Malthus's "Principles of Population,"  
having obtained the work from the town  
library; and without this work he would prob-  
ably not have hit upon the theory of natural  
selection. The year spent as a teacher in  
Leicester was, therefore, considered by Wallace  
as perhaps the most important in his early  
life.

\* \* \*

Before the principle of evolution through  
natural selection or the survival of the fittest  
had been discovered independently by Darwin

and Wallace, a collection of natural history specimens had no more scientific significance than a collection of postage stamps. The specimens were grouped and classified according to one characteristic or another, and more or less vague solutions were offered to account for resemblances and differences of structure and habit, but the true cause of the origin of new species in animate nature remained a mystery. In February, 1858, during a period of intermittent fever at Ternate, Wallace was pondering over the problem when the conclusions arrived at by Malthus as to the factors affecting increase or decrease of population came into his mind; and there flashed upon him all the possible effects of the struggle for existence. In two days the entire draft of the paper showing the application of the views to organic species in general was sketched and posted to Darwin, who had been working upon the verification of the same idea for twenty years. ONLOOKER.

## SCHOOLS AND EMPLOYERS.<sup>1</sup>

By CLOUDESLEY BRERETON, M.A., L.-ÈS-L.  
Officier de l'Instruction Publique, &c.

**PAYMENT OR REPAYMENT OF FEES, PRIZES.**—In London, Leeds, Edinburgh, Sheffield (especially so far as Messrs. Mappin and Webb are concerned), and also in other large towns, certain employers and business firms pay the fees of those of their workpeople who attend evening classes, or refund them (and that is particularly the practice at Liverpool) to those students who attend at least 75 per cent. of the possible hours of instruction, the attendance cards being in many cases checked at definite intervals by the firm concerned. Other employers go still further, and, like the White Star Line, award prizes to their employees for attendance and for success at the examinations held at the end of the session.

**COMPULSORY OR SUBSIDISED ATTENDANCE AT CLASSES**—(a) *London.*—In London especially, various public bodies require certain categories of their employees to attend classes. This is done, for instance, by the London County Council in respect to its messengers and apprentices. The Admiralty, War Office, Post Office, and Patent Office also compel their messengers to continue their education. Certain private firms reduce the working hours of their junior employees and render attendance at definite classes obligatory. Certain engineering firms send their apprentices for a whole day a week to technical institutes, and a number of printing firms allow their apprentices to leave early on one day a week to attend special afternoon classes. Other firms allow classes to be conducted by the Council within the firm's premises with the help and co-operation of the firm. In most of these instances the time off is allowed without loss of wages.

<sup>1</sup> From a paper read at the "Conference of Employers of Labour," at the National Gas Congress and Exhibition on October 28th 1913.

(b) *The Provinces.*—Similar practices obtain in the provinces. Some firms allow apprentices to go to work at 9 a.m. instead of 6 a.m. after attendance at evening class the night before. Others allow them to leave at 4 p.m. instead of 5.30 on class evenings. Others again send their employees and apprentices for instruction on two or three half-days a week with additional evening instruction over a period of two years, as in the case of H.M. Dockyards; or, as in the case of Sir William Mather's firm, make it a condition of employment that all boys should attend continuation schools for at least three evenings a week during eight months in the year; but this, I believe, has recently landed the firm in some difficulty. Sometimes the time off only amounts to one afternoon a week, as at Liverpool, where the technical school is attended by apprentices and workmen in engineering, the metal trades, and in painting and decoration. The Liverpool Gas Company allow their meter-makers to attend on these terms for two years, and other firms allow their workmen to attend until eighteen and even twenty-one.

**OTHER FORMS OF CO-OPERATION.**—Both at Liverpool and Edinburgh much has been done to interest employer and employees in continuative education by mass meetings being held in some works, like those of the Cunard Company, such meetings often taking place in work hours. At Edinburgh a further step has been taken by the appointment of a regular apprentice-training committee for the registration of apprenticeship and the oversight of their trade and educational work, and this committee has recently appointed sub-committees for the different trades. Somewhat similar trade committees are already at work in London. Wherever after-career committees and juvenile employment committees have been established, employers have as a rule taken an interest in their formation and their working. Here, in London, the County Council, who have just reorganised their evening-school system, is making a great point of the need of enlisting the interest and co-operation of the employer.

In the Education Committee's report, subsequently adopted by the Council, it was proposed to appoint, in place of "managers" as now constituted, advisory committees, comprising, among other representatives, persons connected with the management of trades, industries, and business houses, the presence of such persons being described as "of the greatest importance." Such advisory committees are to meet once or twice a year to consider the aims and results of the institute, discuss the annual report, and visit individually the school according to a rota. Employers are to be brought into closest relationship with the evening institutes, both to encourage their employees, and directly to criticise the subjects studied. Each committee as a whole is to act as a link between the day school, juvenile labour exchange, the place of business, the home, and the institute. It is too early to indicate results, but the programme at least is catholic in its comprehensiveness. Again, at the official opening of the newly reorganised evening schools and institutes, among the 250 important persons who were invited to deliver addresses on this



occasion, a good proportion were prominent persons in the business world.

But probably the two most extensive and complete examples of co-operation between school and employers are afforded by the sandwich system of training engineering apprentices, which originated at Sunderland, and has been adopted elsewhere, and the so-called Bournville scheme, inaugurated by Messrs. Cadbury. The former deals entirely with skilled labour, the latter rather with unskilled labour. The former, again, is practically a method of day-time instruction, while in the latter the great bulk of the instruction is given in the afternoon or the evening.

**THE SUNDERLAND SCHEME.**—The Sunderland system was established in 1903 for the training of apprentices in shipbuilding, marine engineering, electrical engineering, &c., and was the outcome of an agreement between the Association of Shipbuilders and Engineers of Sunderland and district, and the representatives of the technical college. For simplicity I quote from the original form, though there have been subsequently no substantial alterations. It embraced some twenty-five firms, one of which, Messrs. Doxford, has twice stood at the head of the world's shipbuilding firms for total output of annual tonnage, and in one year exceeded the total shipbuilding production of Germany. The magnitude, therefore, of the interests concerned is obvious. The agreement laid down that the essential principle of the system for training engineering apprentices consisted in a combination of practical training in the firm's workshops and drawing offices and a scientific training in the technical college. The two intermediate years between the apprentices leaving school and taking the course were to be spent in the workshops with attendance at evening schools in matters of preliminary engineering subjects. Each year a number, not exceeding twenty-five, of free apprenticeship studentships were to be offered for competition among shipbuilding and engineering apprentices.

During the three or four years following their selection, the successful apprentices were to be allowed leave of absence to attend the technical college classes from October 1st until March 31st free, the time spent in college to count towards their apprenticeship, the rate of advances in wages to be the same as if they were in the shops, and during the summer months special facilities were to be given for traversing all the various stages of work. At the end of the student's apprenticeship a college diploma was to be given to those who had satisfactorily completed the course of study and their apprenticeship, such a certificate being signed by the Association of Shipbuilders and Engineers of the district and by the Technical College authorities. It was also agreed that notices of the examination should be posted up in the workshops of the firms concerned. The scheme has now been in existence for ten years. It has worked satisfactorily, and it has certainly been copied consciously or unconsciously in several places at least in one case to one's own knowledge in London.

**THE BOURNVILLE SCHEME.**—The Bournville scheme is less easy to describe. Its ramifications are so wide-

spreading and comprehensive that it is difficult to give more than the barest outlines of the scheme. It deals, as we have said, not merely with skilled but unskilled labour, and attempts to improve the physique and intelligence as well as the skill of its employees. It is closely interwoven with the factory organisation, and also co-operates very closely with the local evening schools. It involves some 2,000 people, and has at its head a regular paid education secretary with five people under him. Much juvenile labour is employed by the firm. Children who enter must have passed the sixth standard and come through the local labour bureau. All are allocated a physical training course and sent for the first two years to general classes at an evening school. Increases are given only to young employees who produce satisfactory reports, bonuses are given to the best students of the year, and fees returned to those making 95 per cent. Weekly returns of absentees are made by the schools to the works. At sixteen, boys compete for vacancies in the skilled trades subsidiary to the main business of the firm. A certain number are taken on as apprentices, proper provision is made for their education both in general subjects and in systematised workshop training, either at the works or at adjacent technical institutes. Annual examinations are conducted on the work by an examiner often appointed by the trades union concerned. Prizes and promotion depend largely on the results.

Classes are held for the actual teaching of operatives in the unskilled subjects. The girls get a three or four years' course in English and household arts, and as 90 per cent. marry before twenty-five, the problem of turning them into skilled employees scarcely exists, especially as the bulk of the remainder obtain superior posts as forewomen, &c.

Classes are now compulsory for all up to eighteen, while for those in the offices the age is nineteen and for apprentices twenty-one. The experiment is in its seventh year, and the mere return in extra health and strength and increased skill and intelligence is believed by the firm to be well worth the outlay incurred. Thus, in cardboard box-making by hand, which is one of the sweated trades, the firm pays a wage above the minimum laid down by the trade board, and can still produce cheaper boxes than can be bought elsewhere in Birmingham.

**WOMEN WORKERS.**—Bournville is particularly noteworthy from the fact that it supplies one of the few instances in which the interest of the employer has been extended to the women workers. Generally speaking, most of the co-operation afforded so far by firms and employers has been confined to employees of the male sex. All the more significant therefore is the recent offer of Lady Boots to provide fifty university women with the requisite business training in commerce and to find them suitable posts afterwards. Judging by the number of responses she has received (well over 200) she has tapped a new stratum of recruitment. Moreover, Messrs. Harrods have promptly done her the honour of copying her by offering similar posts and training to twelve selected college girls.

## HISTORY AND CURRENT EVENTS.

WE are in the midst of centenaries. The years 1813-5, of which so many are now thinking, were years of great events in the history of Europe, and among them one which especially attracts the attention of the English-speaking world, and indeed primarily affects that world only, is the Treaty of Ghent, which in 1814 ended a short war between Great Britain and the United States of America. We on this side of the "herring pond" are not apt to dwell much on that war. Our text-books are generally full of our share in the conflict then taking place on the Continent, and can spare no more than a paragraph for it. But to our cousins in America it looms much larger in memory. They sometimes call it their second war of independence, for they then fought against a claim of the Mother-country (they thought of her as a step-mother) to the lifelong allegiance of all British-born subjects, and made good that claim on behalf of their citizens. Since then the two nations have never come to blows, have adopted instead the more manly way of arbitration to settle their quarrels, and next year, if the proposers have their way, and we hope they will, there will be an exhibition to the world of that advance in civilisation made by the Anglo-Saxon race.

OUR German friends have already been celebrating, and with good reason, the first great crisis in the overthrow of Napoleon. This summer they have been meeting at Leipzig to commemorate the series of conflicts which in 1813 raged round that town, and have been known to history as the "Battles of the Nations." Prussia has naturally taken the lead, for the victory was mainly the result of the long preparation made by statesmen who, if not all Prussians by birth, had given their lives to the service of the State which was most capable and most willing to lead the German revolt against what had come to be a foreign tyranny. Stein, driven from Prussia by Napoleon, had become the adviser and inspirer of Alexander of Russia. Scharnhorst had outwitted Napoleon by his reorganisation of the Prussian Army. Yorck had felt his head tremble on his shoulders when, in the early days of the French retreat from Russia, he ventured to force the hand of his King, and only Austria hung back, thus forfeiting her right to share in these festivities, a loss typical of her history from that day until in 1866 she was finally excluded from the Germany she had ruled so long.

ARE we in danger, in the midst of these celebrations of wars, of forgetting the events which at the same time were preparing the European world to be able to pay for the money cost thereof and to make the condition of the populations worth all the cost in lives and energy? "Peace hath her victories no less than war," and if we turn to the annals of progress in the arts of industry and commerce, we shall find that in those fateful years 1813-5, there were events no less important than those which attracted so much attention. In 1812, for example, the first steamboat in Europe was launched on the Clyde, and in 1814 George Stephenson placed his first locomotive engine

on the little railway between Killingworth Colliery and the wharves where lay the boats to carry the coal to London and other ports. We direct attention to this last event because it is a commonplace of our text-books that the opening of the railway between Liverpool and Manchester in 1830 was the first event in the history of railway communication. There were many steps before that much-celebrated occasion, and the humble beginnings of a great career should not be forgotten.

SOME of the mud flung at the Puritans from 1660 to the present day is the allegation of what is considered a crime, that they adapted ("twisted" perhaps would be the favourite word) the words and thoughts of the Hebrew Scriptures to their own purposes. The fact is true (which is more than can be said for other Cavalier slanders), but, even if it were a crime, it is one which they committed in common with their opponents. Is it not recorded that Charles I. when a "prisoner" with the Scots stood up during divine service and suggested that one psalm should be substituted for another, as more suitable to his depressed condition? And if doubt is cast on the authenticity of that story, have we not the Eikon Basilike, which Dr. Gauden said he had put forward under the name of his royal master? And now that, after the lapse of religious politics in the eighteenth century, we have had a revival thereof in the nineteenth and twentieth, we have from Ireland a "covenanters' hymn," too long to quote here, but sounding throughout like an echo of Hebrew psalms.

## ITEMS OF INTEREST.

### GENERAL.

THE annual meeting of the Headmasters' Conference will be held on December 23rd and 24th at Reading School, Reading.

THE twenty-third annual general meeting of the Association of Headmasters will be held in the Guildhall on January 6th and 7th, 1914. Sir John D. McClure, president of the association, will occupy the chair.

THE annual meetings of the Association of Assistant-masters in Secondary Schools will take place on January 1st, 2nd, and 3rd, 1914, at the London Day Training College, Southampton Row, London, W.C. The council will meet on the first two days, and on January 3rd the general meeting will be held at 10.30 a.m. The annual dinner of the association will be held at Pagani's Restaurant, Great Portland Street, London, W., on January 2nd, at 7.30 p.m.

At the meeting of the Teachers' Registration Council, held on November 21st, under the chairmanship of Mr. Arthur Acland, the conditions of admission to the new register were finally approved. The text of the regulations is published in *The Times* of November 22nd; and it shows that the conditions under which entries may be made on the register will include the following:—There will be one register

only, and no division into separate columns of primary- and secondary-school teachers. Experience will be the main condition for existing teachers, provided that they have passed certain specified examinations, and five years of continuous teaching will admit such teachers to the register until the end of 1918. This term will be reduced if evidence can be given of a period of training in methods of teaching. A training in teaching, extending over at least one academic year or its equivalent, as well as three years' continuous experience, will be demanded as a condition of enrolment after 1918. The applicant for enrolment must be at least twenty-five years of age. The fee for enrolment will be a guinea.

SPEAKING at Rotherham on November 5th, the President of the Board of Education said next year he proposes to alter the system of grants and practically begin afresh with the grant system. There are now eight grants which require a great deal of clerical work on the part of teachers. Mr. Pease proposes to sweep away the whole existing grants and substitute a new system. There is a large drain on the rate-payers of the country because of new buildings erected for the purposes of education. Instead of contributing to new buildings, the President proposes to give contributions to all local authorities who have incurred loan charges for new buildings. The object is not merely to help those in the future who are going to be progressive, but also to help those who in the past have put up new buildings. The next proposal is that where two areas are equally efficient the poorer will get the larger grant, and where two areas are equally poor the more efficient would get the larger grant.

AN effort is being made to arrange a conference on the teaching of English literature in connection with the next summer Shakespeare festival at Stratford-on-Avon. During the month of August, Stratford is the centre of many activities which are of real interest to teachers of English. Besides the Shakespeare plays performed every day by the F. R. Benson company, there are performances—masques, pageants, and historical plays—by village and town children, demonstrations of folk-dancing and of English sports, and lectures on a variety of subjects connected with literature and the drama, arts and crafts, history and folk-lore. It is thought that a week's conference on the educational aspect of literature and the drama held in conjunction with the festival would prove very stimulating and enjoyable to teachers. The committee desires to know whether the project will be welcomed by teachers and heads of schools. All communications should be addressed to the Hon. Secretary, Conference of Teachers of English, Shakespeare Memorial, Stratford-upon-Avon.

ARRANGEMENTS are being made for the holding of an international exhibition at Frankfurt in 1916 under the designation "Youth and People in the Twentieth Century," with the subtitle "International Exhibition for Education, Culture, Formation, and Physical Training." The exhibition will comprise all

matters relating to the care of children, education, school organisation, the protection of the young, hygiene, sport and games, vocational training, from continuation schools to the higher institutes, as well as national culture and development. Exhibits will be invited from educational authorities, public corporations, societies, and industrial undertakings.

THE tenth annual report of the Education Committee of the city of Manchester contains some interesting facts regarding the attendances of students at evening classes. It appears that in the evening classes of the Municipal School of Technology the rate of decline in attendance is consistently about 1.3 per cent. per week of the total number at the beginning; and that at the Municipal Evening School of Commerce, from the time when the classes have settled down, there is a steady decline of about 1.6 per cent. per week in the number of hours of attendance registered. A quotation is included in the report from the Board of Education report on the Municipal Evening School of Commerce, in which it is averred that the school is probably the best of its kind in the kingdom.

THE League of the Empire announces that the following are the subjects and conditions for the essay competitions inter-all schools of the Empire for 1914:—(a) *Senior Competition*.—Subject: "Some tale of travel or discovery within the British Empire." Prizes: A silver challenge cup, value £10 10s., presented by the Right Hon. the Earl of Meath, K.P., to be held by the school, and a prize of £5 5s., given by the League of the Empire, is offered for competition to pupils throughout the Empire who are over 14 and under 20 on January 1st, 1914. The essay must not exceed 2000 words. (b) *Junior Competition*.—Subject: "The food on your breakfast table: where, within the British Empire, it came from, and how it was produced." Prizes: A silver challenge cup, value £10 10s., presented by the Right Hon. the Earl of Meath, K.P., to be held by the school, and a prize of £3 3s., given by the League of the Empire, is offered for competition to pupils throughout the Empire who are under 14 years of age on January 1st, 1914. The essay must not exceed 1000 words. All essays must be certified by the teacher, parent, or guardian to be the unaided composition of the boy or girl in whose name it is sent in. The essays must first be judged in the schools, only the best one from each school being sent in for consideration. They must reach the Central Offices of the League of the Empire, 28 Buckingham Gate, London, S.W., by March 31st, 1914. The names of the winning schools will each year be engraved upon the cups, which are replicas of the Warwick Vase.

THE programme of the examinations of the Royal Society of Arts for 1914 is now ready. It contains the papers set in 1913 and the examiners' reports on the work submitted. These reports provide interesting reading, and should be valuable to all teachers in evening schools, for the candidates who take these examinations are so numerous and so widely spread

that the criticisms of the examiners are of general application. In several cases the examiners note that there is a distinct gap between the candidates who just succeed in passing the examination with a second-class certificate and those who do really well and obtain a "first." One examiner, in shorthand, notes that his previous suggestion, that teachers should not submit candidates unless they had a real chance of passing, has borne fruit this year. A second remarks: "Many candidates fail to get high marks because (i) they do not quite understand what is wanted in answer to certain questions; (ii) they have not had practice in interpreting the facts which they know." A language examiner is of the opinion that teachers should impress upon candidates "that nothing can be done in any language without grammar"; while one of his colleagues records that scarcely anyone showed any real familiarity with grammar; and another implies a similar criticism. The English examiner notes that many candidates presented themselves without adequate preparation or preliminary study.

IN connection with the article by Mr. P. H. Brill on rifle clubs in secondary schools on p. 447 of the present issue, it is worthy of note that the recent generous gift of Sir Robert Lucas-Tooth has been made towards a fund for assisting and extending existing organisations which encourage boys to prepare themselves for the service of their country. The funds are to be used in making grants either in money or in kind for, among other purposes, the loan or gift of miniature rifles, the grant of practice ammunition, and the payment of travelling expenses to camps. Although schools are not mentioned, it is stated that the fund should assist all boy organisations composed of members whose financial circumstances render such help necessary. Possibly, here is the opportunity for schools, which lack rifle clubs for want of financial assistance, to get the aid they require.

M. DALCROZE gave one of his lecture-demonstrations in the King's Hall, Covent Garden, on November 12th, assisted by pupils who illustrated typical phases of the system. Some exercises implied extraordinary concentration and control; for instance, the movements representing difficult rhythms, the length and grouping of notes and the beating of different times by means of head, arms, and feet simultaneously. In other exercises the singing of a group of students was conducted by one of their number by movements of the whole body, and in others classical music was variously interpreted. The effect of a first impression at least is to suggest almost unlimited possibilities for the method. It seems to touch one of the main-springs of human achievement. The great beauty of the movements makes the same appeal to the mind as beauty in nature. M. Dalcroze has developed the most fundamental of the arts, namely, the expression of idea and emotion by bodily movements, as a preparation for musical training. It may, however, be doubted whether this study of rhythm should for all children lead up to the study of music, or whether, where the gift of music is withheld, eurhythmics should not find completion in some other form of

art. Intellectual processes of a high order pervade all the work, and concentration of attention, exact conception and perfect control are distinctive features. Moreover, there is a creative element in eurhythmics which should preserve it from the bondage of technique and should make health and joyousness sure results of its training.

THE kinematograph continues to force the fact of its existence on our attention. *The Evening News* inaugurated a series of "educational" kinematograph matinees to children in various parts of London, which are to be given this winter, by inviting the Lord Mayor and Sheriffs, educational experts, school managers, and others who take a practical interest in educational progress, to a special exhibition on October 25th, at the West End Cinema, London. If this exhibition be taken as typical of the series, a number of facts are evident. One is that the film is invaluable as an aid to the understanding of processes in which *one* object is specially to be observed. The making of a silk hat, the cocoa industry, the working of an iron and steel foundry, although differing in value educationally, were excellently self-explanatory. Less satisfactory, because more interrupted and jerky, was a film showing the ascent of the Matterhorn; here the geographical facts rightly were subsidiary to the figures of the climbers, and really were better understood because more coherent. But it is evident that the very educational principle which made these a success has not been grasped by our would-be kinematograph educators. They do not realise that, whether the "lesson" lasts five minutes or three hours, we must have one central theme, or at most a few. For lack of this realisation other films at best achieved little, and worse might be said of them.

DOMESTIC service as a career for educated women was the subject of a paper read by Mrs. Cloudesley Brereton at the National Gas Congress. Taking English home life as her text, she emphasised the fact that our idea of home needs to be widened and exalted. "Woman—raised to her highest power—is the mother of the race. If she performs her work with that aim before her, it will signify less to her what part she takes in the great evolution." This idea was developed to show that the status of the domestic worker, trained for the profession while she is young, should be second only to that of the mother; she should be colleague and friend, instead of serf or dependent. Mrs. Cloudesley Brereton struck boldly at the root of some of the present-day difficulties in housekeeping—the building of the house itself and the means of heating and lighting. The glimpse she gave of the future showed a home housed in a sanitary and convenient building; the food wisely planned and cooked under pleasant conditions; the workers intelligent, healthy, and well trained; and underlying all a saner sense of values than at present obtains. As the editor of a book on cookery, Mrs. Brereton associates herself with a practical part of housekeeping, and her praise of gas as a medium of cooking and heating, if somewhat exaggerated, is justifiable.

*Science Progress*, to judge from the October issue, is acquiring a strong medical tendency, but probably these articles will be read with interest. Sir Charles P. Lukis deals with the sanitary awakening of India, and it is possible, after reading his essay, to understand some of the difficulties with which we as governors of that country are faced. Anything connected with the child cannot fail to appeal to teachers, many of whom will welcome the opportunity given to study the Chadwick public lectures given by Dr. F. W. Mott. These deal respectively with nature and nutrition in mental development, and the inborn potentiality of the child. We must also refer to essays by Sir Harry Johnston and Sir Ronald Ross on scientific spelling.

*The Educational Review of New York* quotes from the *San Francisco Argonaut* (a paper which it regards "as having the best influence of any newspaper published in America") some caustic remarks on a subject much discussed on both sides of the Atlantic—the subject of sex hygiene in schools. The *Argonaut* approves of the course taken by the Chicago Board of Education with reference to a proposed syllabus of instruction in sex hygiene. "The Board will have nothing to do with it. It refuses to sanction or to touch such an explosive as this. It says in effect that while there are certain things that children ought to learn, it is far better that they should go untaught than that the instruction should be given outside the family circle. . . . No one who can look back upon his own boyhood days, and so imagine the effect of a class lesson on sex hygiene, no one who has any recollection of the school-class consciousness on such matters (which always tends to descend to the level of its lower units), could fail to look upon an experiment of this kind without consternation. If any educational effort of this sort is to be made—and it ought to be made, and it is being made—it should not be directed toward the children, but toward the parents." We express no definite opinion on the matter at present, but we venture to say that the point of view here taken is one that needs close attention.

#### SCOTTISH.

THE annual meeting of the Secondary Education Association of Scotland was held in Edinburgh University. Principal Sir William Turner, who welcomed the association, said that it is a great mistake for teachers to think that the faculty of arts is destined to train teachers for schools. Its object is to train for all the professions and to give a wide and generous culture fit to prepare those receiving it for any station in life. Miss C. E. Ainslie, headmistress of George Watson's College, in her closing address as president, passed in review the chief activities of the association during the year. She laid special stress upon the action taken in conjunction with the Educational Institute of Scotland and the Class Teachers' Association with the view of obtaining direct representation upon the provincial committees for the training of teachers. She also referred to the movement initiated by the association for improving the salaries in

secondary schools. The figures presented in Dr. Third's report proved that there is urgent need for a revision. Persons of culture and refinement prepared to take up an arduous calling should be freed from the pressure of pecuniary anxieties and should have within reach the stimulus afforded by travel, books, and various forms of research involving expenditure. Miss Ainslie had many wise things to say in regard to the effect of the restless, striving, pleasure-seeking time-spirit upon the school. While sympathetic towards the movement for the establishment of hostels, cadet corps, scout companies, and similar societies, she urged that care should be taken not to sacrifice quiet reading and the contemplative habit to the many-sided activities characteristic of modern life.

THE annual meeting of the Historical Association of Scotland was held this year in Marischal College, Aberdeen. Prof. Lodge presided over a large and representative attendance. In his opening remarks the president said that the association had made marked progress during the past year. The membership had almost doubled, and they were now one of the largest subject associations in Scotland. During the year the publications committee had issued three pamphlets: "The Scottish Parliament," by Prof. Terry, Aberdeen; "A Bibliography for the Study of Greek and Roman History," by Mr. A. F. Giles, Oxford; and "A Bibliography of Aberdeen," by Mr. J. F. Kellas Johnstone. In addition, the committee had supplied to their members copies of the annual Bulletin of the Historical Association of England. At the afternoon session Prof. Rait delivered an address on the family and clan.

MR. JAMES BEATTIE, Greenock, speaking in Glasgow at a meeting of the local branch of the Secondary Education Association, said that Sir John Struther's report showed a breadth of view, a candour, and a genial outlook which rendered it an invigorating and helpful contribution to present-day pedagogics. The report had won for itself a popularity that was seldom accorded to Blue-books. There was little to cavil at in the report, but he recommended caution to those who from the seat of authority offered suggestions as to teaching methods. New ideas were always welcome, but when they came from the heights of Olympus they were apt to gather momentum and roll farther than one could foresee. In reading the report of the examiners on higher history, he was more than ever convinced that this subject was beyond the capacity of school pupils, and he pleaded for a return to the old method whereby history was made an integral part of the English paper.

At a meeting in Edinburgh of the executive committee of the Rural Schools' Association, it was reported that during the one year of its existence effect had already been given to certain of its proposals for facilitating higher education in rural schools. Instructions had been sent down to the inspectors by the Department that every encouragement was to be given to the development of higher education in isolated rural districts, and already in many parts there was a great stirring of the dry bones. It was

recognised, however, that the work of the association was not yet finished, and that it must continue its efforts for the beginnings of secondary education to be supplied in every primary school that is not within walking distance of a real secondary centre.

THE autumn meeting of the Scottish Branch of the English Association took place this year in Glasgow University. The reports of the secretary and treasurer showed that the association is in a thoroughly sound condition. Prof. MacNeile Dixon took "Inspiration in Poetry" as the subject of his retiring address. Inspiration, he said, had its birth in an exalted and ecstatic state of mind which had been described as pathological, and bearing a close resemblance to hysteria or dementia. But to describe a great artist as a kind of madman did not take us very far. The works of the great poets were all marked by a high sanity. They appeared to be singularly successful in preserving their productions from any taint of the disease from which they were supposed to suffer. Mr. J. H. Murray, H.M. Inspector of Schools, afterwards delivered a thoughtful and helpful address on the study of prose: its aims and methods. Poetry, he said, made a much more ready appeal to the child than prose, but, even though unattractive, prose should have a more prominent place in the curriculum, seeing it was to be the life-long medium of expression. Poetry made its appeal chiefly to the imagination, prose to the intellect and will. In the early stages he suggested legend, myth, and fable as the ideal prose forms. In the intermediate stages he advocated the decrease of fiction and a gradual increase in books of travel, biography, and general literature, while in the advanced classes the great masterpieces of the seventeenth and eighteenth centuries should come under review.

THE report by the council of University College, Dundee, states that there were 210 students in attendance last session, as compared with 206 the year before. These were distributed over the various faculties as follows:—Arts, 72; science, 46; medicine, 76; law, 16. The income from fees was £1,748, an increase of £111 upon the figure of last year. The total income amounted to £14,014, and the expenditure to £13,997. A large part of last year's report was taken up with a discussion of the strained relations between the College and St. Andrews University. Fortunately the disaster of an appeal to the Law Courts has been averted, and a working agreement fair to both parties has been found.

#### IRISH.

THE Intermediate Board has issued an important modification of one of its rules for 1914. In 1913 it had a rule that to be eligible for a prize or an exhibition a candidate must obtain honours in two other subjects in addition to the two main subjects of his group. For 1914, as originally published, the rule was modified for the classical group in all grades, and for the mathematical group in the middle and senior grades, so that for these honours in only one other subject were necessary; now the rule is modified

for all groups in all grades, and will run that students must obtain honours in one other subject. This is another instance of a false experiment by the Intermediate Board which has been abandoned after causing great inconvenience, and should never have been made. The rule will now be the same for 1914 as for 1912.

THE Intermediate Board has also issued a circular to heads of schools, stating that a proposal has been made that the Board should in future hold only two examinations instead of three, and asking for their opinions on it. It is stated that the two would form what might be called junior and senior leaving certificate examinations, and the Board points out that the expense of conducting two examinations would not be so great as that of conducting three, and therefore the effect of the proposed change would certainly not be to reduce in any way the amounts available for the school grant. It would be more helpful if the Board would define the nature of the two examinations.

THE Classical Association of Ireland has given this autumn a series of four archæological lectures, illustrated by lantern views, in the hall of the Royal College of Physicians, Dublin. The first lecture was given on October 30th, by Count G. N. Plunkett, director of the National Museum, on the relation of classical literature to the art of the Italian Renaissance; the second, by Mr. Wm. Kennedy, on November 13th, on Pergamum and its sculptures; the third, on November 20th, by Prof. R. A. S. Macalister, on the Philistine people: their history and civilisation; and the last, on November 27th, by Prof. W. A. Scott, on the influence of Greek and Roman architecture on later styles. On Friday, November 7th, at a joint meeting of the Trinity College Classical Society and the Classical Association of Ireland, held in Trinity College, Prof. Browne read a paper on Greece, the cradle of democracy.

THE Protestant Schoolmasters' Association has recently had brought before its notice cases of what is generally known as "touting," a practice unfortunately too familiar in Ireland among all classes of schools, Catholic and Protestant, boys and girls, and passed a unanimous resolution "that the association, having heard from some of its members that cases had occurred in their experience of headmasters endeavouring, without any request on the part of the parents of certain pupils, to attract these pupils to their own schools by the offer of reduced fees or other inducements, expresses its strongest reprobation of all such practices."

PROF. CULVERWELL is delivering during this Michaelmas term a course of public lectures in Trinity College, Dublin, on education and character: some modern points of view. The first lecture related to the general problem of education in a modern State. The second lecture dealt with manual and rhythmic education in modern and ancient times, including the status of the manual professions in Ireland in early times; the third dealt with agricultural education, and gave instances of its remarkable effect on character; the fourth dealt with modern attempts to estimate character and ability by simple psychological and physio-

logical tests. The last two lectures to be given, on December 4th and 11th, will (1) relate to the growth of the will through action and responsibility, and (2) be mainly devoted to an account of the really rational system of education in Würtemberg, the first European country to adopt a working system of popular education.

THE professor of education in University College, Dublin, announces two courses each of four public lectures to be delivered in the University Buildings, Earlsfort Terrace, the first, in the Michaelmas term, dealing with "The School and the Home," and the second, in the Hilary term, dealing with "The Relations of Class Work and Home Work."

THE autumn meeting of the Catholic Headmasters' Association was largely attended, and in the absence of the chairman, was presided over by the Very Rev. P. Cullen, C.M., of Castleknock. The following resolutions were adopted: (1) That we protest against the loose and unsystematic marking in English in the Intermediate Examinations for 1913; (2) it was agreed to request the Intermediate Board to arrange to have the English compositions examined by not more than three expert examiners, so as to secure something like uniformity in the marking, but it is not proposed to suggest any change in the system so far as history, geography, and literature are concerned; (3) that the earnest attention of the Department be invited to the notable inequality in the marking of different science subjects; (4) that in the examination in shorthand, the teacher or someone well accustomed to reading for shorthand should be allowed to dictate, the time being checked by the superintendent, or, failing this, that the superintendent shall read at the correct rate and in a such a manner as to be followed easily; (5) that in the interest of the average student, and considering the difficulty of passing the examination, as shown by the small percentage of passes, (a) the principle of averages should be restored, and (b) the pass papers should really be of such a character "as may be answered by a student of average ability fairly well taught"; (6) that since arithmetic is now an essential subject and separate papers are set in it, the examination in arithmetic should be quite separate from that in algebra, and that suitable and sufficient time be allowed for it; and (7) that the Board be requested to make music an honours subject on lines similar to those adopted in the science subjects.

#### WELSH.

At the autumn meeting of the Court of Governors of the University College of Wales, Aberystwyth, Principal Roberts pleaded for scholarships and other aid to assist poor students, a direction of finance which must be largely left to voluntary effort. Such a college as Aberystwyth, situated in a thinly populated district, can only have a small permanent *clientèle* of students from the locality itself. All the students practically, therefore, have to go into lodgings, and provide for their maintenance as well as for their education. In Wales emphatically the ablest students came from the poorest homes, and often

agricultural districts. Wales had before it the parallel case of Scotland for its guidance. Scotland had learned by the experience of centuries that the provision of bursaries on a large scale was indispensable to the maintenance of the tradition in favour of university education. The precious thing there, as in Wales, is the existence of the tradition, and the Carnegie fund came in to assist the continuance under the conditions of modern life, for the benefit of Scotland, and of the world. He believed the proportion of that ability in the district, properly sifted, was large; that the resources of a very large number were totally insufficient without assistance, and that it was extremely desirable that none of that kind of ability should be wasted through poverty and discouragement at the point of departure between school and university. Principal Roberts expressed his strong opinion that this was one of the pressing needs of education in Wales at the present moment.

THE First Commissioner of Works has announced that it is the intention of the Government to set up an Advisory Board for Wales under the Preservation of Monuments Consolidation Act and Amendments of 1913; further, that the First Commissioner is proceeding to set up such a Board. The Advisory Board will be limited in number, but the Commissioner has recommended already that the National Museum for Wales shall have one representative on the committee, and Dr. Hoyle, director of the Welsh National Museum, has been asked to be one of the members.

THE Bangor National Eisteddfod Committee is offering a prize for the best public performance of a Welsh drama. More than thirty companies throughout Wales have entered the competition, and two are to appear in the final test during the Eisteddfod week at Bangor next year. Two gentlemen have been appointed adjudicators, and it is now their business to visit the various districts in order to see the local performances in the preliminary test. The competition is arousing great interest, and we note that in an account of one of these performances, it is stated that the event was announced on the Sunday in several Nonconformist chapels, as taking place in the course of the week. This shows a remarkable change of feeling on the part of Welsh people within recent years with regard to the drama. It is further stated that ministers of religion are attending the plays given in the competition, that a minister was an adjudicator of the prize for the best Welsh drama at the Carmarthen Eisteddfod, and that at least one of the plays in competition for the Bangor Eisteddfod was written by a minister. It is claimed that "Welsh life, as it really exists in the rural districts, cannot be portrayed by the translation of English and French plays, and the mere attachment of Welsh names, but the plays must be written in the vernacular by Welsh dramatists."

SINCE a University Medical School has been established at Cardiff, added importance and responsibility have been attached to King Edward VII.'s Hospital in that city. At a special meeting of the board of governors, a recommendation of a committee was

proposed to the effect that no person should be appointed to the staff of the hospital unless he should hold the respective qualification of F.R.C.S. Eng., or M.R.C.P. Lond., from January 1st, 1916, onwards. It was pointed out that modern developments of special fields of activity necessitate special study and special diplomas in hospital work, and that this recommendation was no reflection upon the value of the university medical degrees possessed by practitioners, who might be candidates for appointments on the staff. It was pointed out also that on their merits the qualifications recommended were the best of their kind in the country. But, on the vote being taken, it was declared that forty-seven voted for the recommendation and "more than fifty" against, and the motion was therefore lost.

HEALTH conferences for teachers are being organised by the Welsh National Memorial Association. This association sends lecturers to each county, who visit every school in the county. Such a visitation has just been made in Montgomeryshire, and is beginning in Cardiganshire. Lectures on health are given to the children. But, in addition, the association desires to encourage health conferences amongst the teachers, and a representative attended a meeting of the Cardiganshire Education Committee to induce the committee to hold such a conference in Cardiganshire. He stated that in Cardiganshire, infantile mortality had gone up 12 per cent. since 1884. Such conferences were part of a health campaign, on the maxim that prevention is better than cure. He urged that if teachers could educate the rising generation in these matters it would undoubtedly be the greatest saving to the rates. It was agreed to pay the travelling expenses of teachers to the conference.

### PEDAGOGICAL ANTHROPOLOGY.

*Pedagogical Anthropology.* By M. Montessori. Translated by F. T. Cooper. xi+508 pp. (Heinemann.) 14s. net.

So many people were charmed with Madame Montessori's account of her method that a translation of another book of hers seemed to promise an event of first-rate interest and importance. Serious readers would naturally expect from its title some scientific statement of the principles out of which the pedagogy of its author had grown, and readers who had found satisfaction in the happy intuitions of the earlier volume would naturally look for more of the same charm and inspiration in its successor. Both types of reader will, we fear, be disappointed when they take up the "Pedagogical Anthropology." Of course, scattered up and down the ponderous volume there are paragraphs which breathe the spirit of the "Method," but taking the book as a whole it is exceedingly difficult to trace the connection between the practice of the teacher and the collection of facts and assumptions which is here brought together.

It should first of all be explained that pedagogical anthropology (as given in this volume) is concerned almost entirely with the body—its external form. In other words, it is somatic anthropology, and the connection between the subject of the book and the work of the teacher is based primarily upon the doctrines of Lombroso, since whose time "it is a matter of

common knowledge that criminals present anomalies of form, or rather morphological deviations associated with degeneration, and known under the name of stigmata . . . which when they occur together . . . stamp (the individual) as belonging to an inferior type. . . ." Such (as she informs us in her preface) is the fundamental point of view which actuated Sergi, and through him Madame Montessori, in applying somatic measurements to the solution of the problems of the schoolmaster. Her philosophy may be described as physiological determinism—a point of view not, of course, absent from the earlier book, but so hidden by the author's obvious love for children that it often passed unnoticed.

It so happens that the ideas of Lombroso have very recently been subjected to thorough scientific examination by Dr. Charles Goring, whose great work on "The English Convict," deserves the attention of educators as well as of criminologists. The opening sentence of his book runs as follows:—"The recent application of exact and standardised methods to the study of anthropology has revealed the extent to which this science has been dominated and confused by conventional prejudices and unfounded beliefs. And of these beliefs there seems to be none more deeply rooted, more widely spread, than the conviction that the inward disposition of man is reflected and revealed by the configuration of his body. . . . It is a survival, no doubt, from a multitude of similar *a priori* credulities. It is kith and kin with the misnamed "sciences" of phrenology, chiromancy, and physiognomy."<sup>1</sup>

This paragraph and the whole introduction to Goring's masterly study might almost have been written as a criticism of the book before us. It would be an interesting occupation to put paragraphs from the one book alongside the other, but space forbids. The criminology of Lombroso is dead as a science, but it still survives as a superstition, and there may be those to whom the application of his ideas to pedagogy will prove attractive. They ought not, however, to be misled by Madame Montessori's statistical methods. Averages alone are almost worthless in such cases, and it is chiefly upon averages that she relies for her facts.

There is surely more pedagogy to be got out of Tylor than from this mixture of science and credulity, published under so promising a title as that of "Pedagogical Anthropology."  
J. A. G.

### MUNICIPAL LIFE UNDER THE ROMANS.

*The Municipalities of the Roman Empire.* By James Reid. xvi+548 pp. (Cambridge University Press.) 12s. net.

DR. REID has found a new subject. In Latin literature the municipalities are always cropping up, but the Roman histories tell us little of their nature, history, or constitution. Dr. Reid examines all these, and while he tells us what we want to know about decurio, senatus, praefectus, and the like, he has opened out a view which proves to be wide beyond expectation. The provincial city was the life of the ancient world, and their system has left a permanent mark on Europe. Indeed, one might often fancy oneself to be reading some history of our own boroughs and their trades-guilds, their mayor and corporation, their proud local life. Asia and Africa have not kept the mark of the municipia: but, unlike

<sup>1</sup> "The English Convict." A Statistical Study. By Dr. Charles Goring (His Majesty's Stationery Office.)



Europe, they have been subjected to massacre and devastation again and again. The Turks have been eating up Asia and the Near East for many centuries, and they never do anything but destroy; other Moslem hordes have played with Africa. But Italy was a geographical expression for a number of rival municipia, down to a time within our memory. Our great regret in reading this book is, that it contains no references. This is a very great drawback; for although we can take most things on Dr. Reid's word, we like to see why he gives it, and we might even wish here and there to make a further excursion on our own account if he would guide us.

The statesmanship of the early Romans comes out in this survey. It was unconscious, as good statesmanship often is; unconscious, that is, on the part of the people, which is quite compatible with conscious statesmanship of the few. So we are beginning to see that our wars of the eighteenth century were not all at haphazard, but that great statesmen, such as Pitt, knew perfectly well what they wanted, and did it. But they were not hampered, as the Romans were, and as we are now, by masses of men ready to be the victims of unscrupulous demagogues. When the demagogues put their finger in the pie it was spoilt, and the work of the municipia went on chiefly in the provinces, which were governed without the demagogue. It was the municipia that made the Roman Empire possible, and held it together when it was made.

The endless variety of the Roman world was due to the municipal ideal. This variety is well shown by Dr. Reid's method, which, after the preliminary history of Italy, takes the provinces in detail and examines each. Local customs and local laws were upheld by the Romans, as they are by the English wherever they do not conflict with equity or humanity. This is what is meant by the proclamation of free Greece by Flamininus in 196, B.C., not empty sentiment; this is what is meant by Gallio's treatment of the Jews at Corinth.

It is instructive to see that the downfall of the municipia came about when citizens ceased to be willing to do their duty for honour's sake. Very soon after this office became compulsory, and the rich were freely bled, while "hordes of official locusts, military and civil, blasted the productive power of the lands." There is something to be said for making classical education compulsory upon members of Parliament.

### PROF. LYDE'S GEOGRAPHY OF EUROPE.

*The Continent of Europe.* By Prof. L. W. Lyde. xv+446 pp. Maps and diagrams. (Macmillan.) 7s. 6d.

This is a notable contribution to a notable series—"The Continents of the World"—by the professor of economic geography in London University, and of a truth the work could not have been placed in more capable hands. The *motif*, so to say, is the "political unit," viewed at first, and rightly, through its world and Continental relations, and afterwards by itself. "To most of us," says the author in his preface, "geography seems to have neither meaning nor value apart from man; and so we usually think in political units so far as human activities are concerned. For the name of a political unit, e.g., France or Japan, is far more than a mere label of an atom of artificially partitioned land; it contains a whole world of suggestion and association, and is an epitome of all that

makes a nation—of things achieved—of a type in art and literature, in science and politics—of an ideal, the passionate desire to preserve and perpetuate which is the only thing deserving the name of patriotism."

All perfectly true—particularly that first sentence—even though the peroration read a trifle highly pitched, and yet what a wonderful stride onwards it connotes from the geography bookmakers of, say, only twenty years ago! Accordingly the twenty-three chapters of the book divide themselves naturally into two parts, whereof the first ten are concerned with Europe as a whole under the headings of "World and Regional Relations" and "Relief and Climatic Controls," and the last thirteen with the political "units" which go to make up the most interesting of all the continents.

Incidentally those who hold the theory of the tetrahedral deformation of the earth will find a strong supporter in Prof. Lyde, and those who are ever on the look-out for novel geographical expressions will find a new English word, or rather the new use of an old word, "wyr," which the professor introduces under a special *apologia ad hoc*, and which at any rate compares favourably with some latter-day Americanisms. Indeed throughout the book he is never afraid to select and use "English" words as media for scientific expressions, wherein he is to be commended assuredly, for if a mother-tongue cannot be adapted to such a purpose it can hold no place amongst the great languages of the world.

Interspersed with the text are maps and diagrams galore. The maps are both coloured and black and white, the former a well-known Philip series in international blues, greens, and browns, the latter familiar selections from the "International Geography" and other Macmillan publications. The principal diagrams are from temperature and rainfall figures. All—maps and diagrams—are unimpeachable, and, what does not always follow, illuminating.

What will strike the readers of this book—and these should be many—as somewhat novel is the emphasis laid on military and strategic geography; cf. for example Germany and Belgium *passim*, and, as a smaller example, the remarks on the recent Dutch Defence Bill. As this side is worked up largely through historical geography, not without much allusion to commercial or economic causes and consequences, no one can cavil; indeed, it develops and sustains the up-to-date interest which the new geography demands. And the whole is told in that breezy style which Prof. Lyde's public always expect from him, and which is so peculiarly—he would say "profoundly"—characteristic of his writings. It is this which leads him to the continuous use of interjectory, but withal apposite and therefore explanatory, examples at every turn; there must be but few statements in his book which are not immediately followed by the familiar "e.g.," sometimes even before his statement is finished. Nor does he ever miss a chance of driving home cause and result, even to the minutest issue. Instances to the point are the rise and (problematical) future of Zee-Brugge, or the connection between the two ship canals of Amsterdam ("North Sea" and "Merwede"), and the modern possibility, now indeed the probability, of the reclamation of the Zuider Zee. It is just this that will make this new "Europe" excellent alike for higher forms, for lecturers in geography, and, above all, for teachers of geography and history. If it is correct to say that what is needed above all in the teaching of these two—or rather twin—subjects is *suggestion*, it is right here anyhow in Prof. Lyde's book. It is crammed full of "suggestion," on which ground alone we specifically recommend it to teachers all and sundry.

## RECENT SCHOOL BOOKS AND APPARATUS.

### Modern Languages.

*Phonetic Spelling.* By Sir Harry Johnston. vi+92 pp. (Cambridge University Press.) 3s. 6d. net.—This is, according to the subtitle, "a proposed universal alphabet for the rendering of English, French, German, and all other forms of speech." Those interested in phonetics will be much disappointed if they take up this book. A slip has been inserted correcting two *errata*; it would be possible to fill half a dozen pages with a record of the author's carelessness. He particularly mentions English, French, and German in his subtitle as languages that he had in mind; but on p. 75 he says: "In any case, whether it is or is not universally adopted for the transliteration of civilised and literary languages, it seems to its compiler the most satisfactory formula yet devised for the writing and printing of Oriental, African, and Amerindian languages, which require to be expressed phonetically and yet legibly"—and this implies some doubt as to its adoption for English, French, German. The reviewer may be excused if he confines his attention to Sir Harry Johnston's transliteration of these languages, as being of more direct concern to us. A careful scrutiny soon reveals that mistakes abound. Thus, while it is true that there is a Parisian tendency to pronounce the nasal vowel *an* as *on*, and we can perhaps forgive the author for representing the former as equivalent to the latter, there can be no excuse for spelling *monde*, *sont* as though they rhymed with English *pond*, *font*; nor for giving *d* as the last sound of *fixed* and *wished*; nor for giving *o* in Fr. *national* the same value as *o* in Ger. *Nation*; nor for making the italicised vowels short in Engl. period, rather, Ger. *buchstabieren*, *erklärt*, and long in Ger. *physikalisch*, *sollst*, Fr. *fixe*, *tout*, *délicat*. Again, it is curious to find him giving double consonants in his phonetic rendering of such words as Engl. *glitter*, *arrow*, *apple*, *dotty*, Fr. *consonne*, *syllabe*, *plissé*, Ger. *wissen*, *zusammen*, *grosse*. These few examples, to which many more might be added, throw a strange light on Sir Harry Johnston's scientific methods; and we are no more favourably impressed when we see his references to other systems. The script of the International Phonetic Association is not fairly represented by the extract on p. 71; according to a footnote, "the author has followed closely the directions for spelling southern English," but he has either a poor ear for sounds, or he is very careless. The International Phonetic Association certainly never gave directions according to which *fruit* and *tree* are to be represented as containing short vowels, and the first vowel of *restore* contains *e*, but that of *regain* *i*; and these are only a few of the mistakes he has made here. His remarks about the scheme of the Simplified Spelling Society are equally inaccurate. We regret that this book has been written; for if it falls into the hands of an earnest beginner in phonetics, it will certainly lead him to give up the study in despair.

### Classics.

*The Gospel According to St. Luke.* The Greek text with illustrations and notes. Edited by W. F. Burnside. xxxvi+272 pp. (Cambridge University Press.) 3s. net.—This is a good little book; if not worthy to stand beside Mr. Page's *Acts*, what edition of any part of the New Testament could be placed there? But it is sensible and clear. The historical introduction is, for the most part, just

what is wanted for the study of St. Luke, but it has the fault of all such—it is equally useful for several other books of the New Testament. All these school editions show a lack of proportion. What we want is one general introduction, published separately, and short particular ones. There is also a good opportunity lost. Luke's preface distinctly implies that there were other gospels current, and in our own day that called after Peter has been found. A few pages on this topic would have been most welcome, and the topic throws light on the composition of the New Testament as a whole. There is a bare allusion to this in the notes.

*The Story of Greece.* Told to boys and girls by Mary Macgregor. With 19 plates in colour by Walter Crane. xiv+356 pp. (Jack.) 7s. 6d. net.—This book is meant for quite young children, and has a simple and colloquial style. It begins with mythology and goes on into history, from Pan and Proserpine to Alexander the Great; the chief subjects are Danae's story, scenes from Homer, Spartans and Helots, the games, Solon, the Persian wars, Pericles and the Peloponnesian War. Xenophon, Epaminondas, Demosthenes, and Alexander. In each case the great men are described by anecdote, or great events briefly. The choice of details is good; all are significant, and add to the impressions of Greek character that the book is meant to make. Walter Crane's pictures are effective; if they are a trifle crude in colour that will not displease a child. But Mr. Crane has never seen a set of pans-pipes (see p. 6).

### English.

*A Manual for Writers.* By J. H. Manly and J. A. Powell. vi+225 pp. (University of Chicago Press and Cambridge University Press.) 5s. net.—Literary craftsmen are many, because it is possible for anyone to acquire, by practice, a certain amount of dexterity in the manipulation of words; but literary artists are few, because they possess something that cannot be taught. In these days most professional people undertake at one time or another a certain amount of writing for publication, and to all such—including writers of educational articles and school books—we commend this volume. The intention of the authors is to provide a guide to the rules of writing and the practices of printing. As the book is of American origin, its advice upon some points of diction and orthography cannot be accepted as final in our own country; but in the main the book may be followed without hesitation by the literary worker, both in the preparation of his manuscript and in passing the printed matter for publication. Only editors and printers' readers know how rarely it is that an author follows the elementary principles of the craft of writing for the Press. The chief fault is inconsistency; it may be in punctuation, the use of capitals, the treatment of collective nouns, or the use of hyphens. Such errors as the use of "and who" or "and which" when no relative has preceded, split infinitives, redundant particles, "several alternatives," "mutual" for "common," the superfluous "got" in the sense of possession, and many others are frequent in the writings of people who ought to know better. We notice that the authors do not include "reliable" in the list of words to avoid, though "trustworthy" is a better word to use. The forms of spelling recommended cannot be accepted here in the case of some words, but in most other matters the book is a safe guide to follow.

*Bohn's Popular Library.* Vols. xxi.-xl. (Bell.) 1s. net each vol.—The publication of the famous Bohn's libraries in the cheap, attractive, and handy form

represented by the volumes is a noteworthy event. It brings the best literature of the world within the reach of everyone and provides a welcome antidote against the superficial and sensational style of the halfpenny Press. The twenty volumes just published include Fanny Burney's "Diary," Carlyle's "French Revolution," two volumes of Emerson's works, "Marcus Aurelius," Montaigne's "Essays," Ranke's "History of the Popes," and Trollope's "Warden" and "Barchester Towers." All the books are clearly printed and neatly bound, and the best a lover of noble thought and fine expression can wish is to have the volumes handy on his bookshelves. Even the contemplation of the old friends brings satisfaction; and each volume gives delight when opened. Messrs. Bell were a little late in bringing Bohn's renowned books before a popular public, but the new series must take its place at once among the best of the collections of cheap reprints and translations now available.

*Exegesis of English Composition.* By W. J. Addis. xii + 452 pp. (Dent.) 3s. 6d.—We very heartily agree with Mr. Addis that an intelligent restoration of the old art of rhetoric will go far to counteract loose habits of writing, which are so prevalent at the present time; and we regard Mr. Addis's book as, on the whole, an intelligent restoration. It has just enough grandiloquence to remind us why rhetoric fell into disfavour, and just enough inconsequence to remind us that even rhetoricians are human. We dare hazard the guess that Mr. Addis is never quite so happy as when he is descanting, *ex cathedra*, on the technique of the literary device. But we have found his book extremely interesting, and can commend it to those who like "the rigour of the game."

*English Prose Passages for Repetition.* Chosen by H. A. Treble. 176 pp. (Oxford University Press.) 1s. 6d.—Prose ediscenda are so rare that they ought always to be welcomed if only for the purpose of insisting on the necessity of learning passages of prose by heart. These bits begin with Malory and end with Stevenson; they are all short, and the book can be put in the pocket; many a booky business man would like to con it in the train. Numbers of old friends are here, and our only complaint is that the editor has given us so little before the Shakespearean day. Where is Reynard and the Monk of Evesham, and even a bit or two of middle and old English? But it is admirable, and will repay the learner by heart ten times over for the half-hours spent on it.

*The British Empire Universities Modern English Illustrated Dictionary.* Latest edition. lxxx + 1010 pp. (The Syndicate Publishing Co.) £1.—It is essential that a dictionary should be up-to-date; the present volume more than fulfils this condition, being published in 1914. But it has other features of ultra-modernism to recommend it as well—glossaries on aviation and motoring, articles on simplified spelling and the Boy Scout movement, incorporating Principal Griffiths's unsolicited testimonial, and, in fact, a "reference library, containing a veritable treasury of often-sought-for facts." Nor must we forget the "able assistance of the editorial contributors," who include Profs. Sir Arthur Quiller-Couch, Gollancz, Saintsbury, Wyld, and Foster Watson; and if they cater unduly for the universities, an accusation we would not dream of bringing against them, no doubt the coloured pictures of postage stamps and decorations of honour will serve to reassure "the business man and the ordinary reader." At any rate, there is one feature which all intelligent people will appreciate

—the excellent type and spacing of the dictionary part itself.

*Written English and the Way to Write.* By K. K. Moakes. (Pupils' edition.) 176 pp. (Longmans.) 1s. 6d.—In her short preface Miss Burstall has said all there is to say about this excellent little book. She points out that we can no longer take for granted that boys and girls will express intuitively their ideas in clear and correct English, and that, failing this, the best thing we can do for them is to train them in the workshop of a master. But too often this following of models has been devoid of system and progression. Miss Moakes has, however, chosen the better way, for by beginning with the "paragraph" she has led her pupils by the only scientific path to the goal of clear and logical expression. Our only regret—in view of a certain amount of inevitable repetition—is that this book does not appear as the formal sequel of the excellent "English Grammar" recently published by two of Miss Moakes's colleagues.

*Poets' Country.* Edited by Andrew Lang. 363 pp., with 24 illustrations in colour. (Jack.) 3s. 6d.—This book is a re-issue of the volume originally published at a guinea, and it gives brief notices by well-known writers of the scenes and haunts which are referred to in the pages of most of our poets. Prof. Collins, Mr. Loftie, and the editor himself are answerable for most of the letterpress, and no word of praise is necessary. The book is, besides being useful in the study of literature, an ideal book-gift.

*The Poetry and Life Series: Byron, Longfellow, Tennyson, Pope, and Poe.* About 150 pp. (Harrap.) 10d. and 1s. each.—We have directed attention before to this excellent series, which combines a sane appreciation with a large amount of quotation, thus providing the reader with all the apparatus he at first requires. No doubt as time goes on some further improvement will be added, for the chief step has been taken. It is not criticism we want for the young student. He does not value his poet if we do nothing but follow Lockhart; and all that is required to lead to a first appreciation is found in these little volumes. Poe has complete justice done to him, though it would have been well to point out what an enormous influence his writing has had; it would almost seem as if the magic of words played here and there, now in Gautier, now in Swinburne, now in Poe, without much borrowing. The series is prefaced by an introduction to the whole (4/6), and dealing with most of the important questions which lie on the threshold.

#### History.

*Exercises and Problems in English History, 1485-1820.* By W. J. R. Gibbs. 174 pp. (Cambridge University Press.) 2s. 6d.

*English History in Contemporary Poetry.* No. II., Lancaster and York. By C. L. Kingsford. No. IV., 1588 to 1688. By F. J. C. Hearnshaw. Each 48 pp. (Bell.) Each 1s. net.

*The Reign of Henry VII. from Contemporary Sources.* By A. F. Pollard. lxx + 332 pp. (Longmans.) Vol. i., 10s. 6d. net.

We have had many "source-books," and our general complaint is that they lack apparatus; the teacher is bewildered with a number of extracts, about which little specific information is given and scarcely anything of criticism which would assign them a value. Now in these four books we have attempts to go farther and to make some use of the "sources." Prof. Pollard's is the first volume (there are to be two more) of extracts illustrating the one reign of

Henry VII., quoted in their original language, English or Latin, for the use of students of London University. There is no direct comment on each, but Prof. Pollard writes a learned and interesting introduction to the three volumes, which will help towards a wise use of the documents he provides. There is no index, but we suppose that will come in the third volume.

The two little books on contemporary poetry embody their extracts in a narrative, which quotes them as illustrative, and makes allusion (sometimes rather tantalisingly) to other passages. We can recommend them both as stimulative, though our preference between the two is for Prof. Hearnshaw's, perhaps because the period is more interesting.

Mr. Gibbs's book strikes us as rather difficult. He gives 150 extracts from a long period, and follows each with "problem" questions, the answering of which by the average, otherwise unaided, student looks very like the making of bricks without straw. Still, for the earnest student, there will be much help in the use of the book.

*Problems and Exercises in British History.* Vol. iii., part vi. *Four Stuart Kings, 1603-1688.* By J. S. Lindsey. 96 pp. (Hefner.) 2s. net.—We need not quote the rest of the title-page to give our readers an idea of the wealth of apparatus with which the student is provided in this book. The previous "volumes" and "parts" of Mr. Lindsay's work are already extensively known, and this "part" now at last, after long delay, completes the series. Each "part" contains something common to all, advice as to reading and self-examination, and something peculiar to the period treated, bibliographies, and answered questions. For the student out of reach of other help we know no other so thorough an apparatus; useful also for the teacher with a class of pupils preparing for examinations.

*English Political Institutions.* By J. A. R. Marriott. vi+351 pp. (Oxford: Clarendon Press.) 4s. 6d.—We have found this a most delightful and readable book, which thoroughly deserves to have reached its second edition. Our only doubt is whether it is better adapted to the teacher, either for his own reading or for use in class, or for the general reader who hesitates at beginning a history of the British Constitution with Cæsar and Tacitus, because he does not see the immediate connection between those far-off times and his daily newspaper. Here, he at least will be satisfied, or we should rather say attracted. Mr. Marriott begins each chapter with some choice quotations, and then sets forth briefly the present condition of things. This is immediately followed by some paragraphs asking the questions how and why are these things so? questions which lead directly to the only possible answer, a historical one, and, leaping to the beginning, Mr. Marriott brings us back through the ages to his first page. There are a few points on which we might have a slightly different opinion from that of the author, but we can very heartily recommend his book to all.

### Geography.

*Pictures of Palestine.* From photographs by S. Nicholls. Twelve pictures, price from 1s. 6d. net to 2s. 6d. net, according to size; complete set, 22s. 6d. (Longmans.)—We have commented favourably in these columns on more than one occasion upon the utility of Miss Nicholls's photographs of the Holy Land. They are extremely valuable in their portrayal of the atmosphere of the country, and hence serve as admirable illustrations for use in elementary, secondary,

and Sunday schools. The reproductions, published at low prices by Messrs. Longmans, are in sepia and are of sufficient size to be useful for class instruction; the largest measures 31½ by 18½ in., and the smallest 19½ by 15½ in.

*A Literary and Historical Atlas of Africa and Australasia.* By J. G. Bartholomew. (Everyman's Library.) (Dent.) 1s.—This is an excellent work of reference. There are forty-eight maps, of the type which one has come to expect from Mr. Bartholomew; a summary of the coinage of the two continents, accompanied by ten illustrative plates; forty-two maps and diagrams showing notable battle-grounds, and notable areas connected with famous authors, such as "R. L. Stevenson in the South Seas"; twenty-two pages devoted to a gazetteer of places of literary and historical interest, and sixty-four pages devoted to an index of place-names. What more can one desire at the price?

*The Upper Thames Country and the Severn-Avon Plain.* By N. E. MacMunn. (The Oxford Geographies.) 124 pp. Maps and illustrations. (The Clarendon Press.) 1s. 8d.—Teachers whose schools lie within the area of this study in regional geography should certainly examine this little book. It summarises the geography of the district in a way which will serve as an example of the methods to be adopted in the investigation in schools of local geography, and will serve as a guide for the detailed work which such teachers will carry out regarding their immediate surroundings. Teachers who feel at a loss how to teach local geography in higher classes and yet work outside this area will find a study of this work by Miss MacMunn, of the Oxford School of Geography, helpful and stimulating.

*Preliminary Geography.* By E. G. Hodgkinson. xvi+225 pp. Maps and diagrams, some in colour. (Clive.) 1s. 6d.—Roughly a quarter of this book is devoted to the explanations of geographical terms divorced from their connection with definite places in an ordered survey of the world. The remainder is devoted to tit-bit information regarding the countries of the world, at least one-half of which could be gathered from the careful study of a good atlas in response to a teacher's stimulus.

*Visual Geography.* Book II. *Continents and Countries.* By Agnes Nightingale. 22 page maps for colouring, with text, notes, and suggestions. (Black.) 8d.—Miss Nightingale continues in this book the scheme of colour work as an introduction to geography which she began with her picture book of geographical terms. Maps of the continents and of some of the principal countries are given, with suggestions for the drawing of trees, the colouring of ships, the drawing and colouring of typical human habitations, &c. Young children will be interested and find scope for their restless activities.

*Commercial Geography.* By F. Mort. vi+392 pp., maps and diagrams. (Oliver and Boyd.) 2s. 6d.—Mr. Mort first treats of the factors which influence commerce, then describes the mineral, vegetable, and animal commodities which enter into commerce, gives most space to the consideration of the chief commercial countries of the world, and concludes with a summary of the history of European commerce. In method the book is descriptive rather than regional or comparative, and the historical sketch, closing as it does with a short reference to the changes which have taken place since the industrial revolution, shows that Mr. Mort has no desire to emphasise the unity of the world which is the

result of the tremendous developments of transport and communications which has characterised the second half of the nineteenth century. In consequence, it would appear that the book lacks unity and grip. The facts are there for the student to find, but the presentation of the facts without cohesion other than that due to mere proximity *in situ* rather tends to the memory work which Mr. Mort deprecates in his preface.

*An Atlas of Commercial Geography.* Compiled by Fawcett Allen, with an introduction by D. A. Jones. (Cambridge University Press.) 3s. 6d. net.—This atlas contains the usual maps to be found in a good modern school atlas, and sixteen world maps on Mercator's projection, showing the areas of production of some of the most important commodities. Accompanying each of these maps is statistical information showing the average annual production of each commodity in the chief producing countries. There is an index of twenty-two pages. The brief introduction states important facts about each of the general maps in the early part of the atlas.

*Europe and North America.* By W. H. Bentley and H. A. Treble. Pp. viii+246. Eight plates in colour and 140 other illustrations. (Cassell.) 1s. 6d.—In this reader, written in a popular style, fourteen pages are devoted to Germany, which is called at the head of the chapter, "The Fatherland." The points dealt with are central position, frontiers, coast-line, the Rhine, and the Elbe, the northern plain, the central and southern highlands, the coalfields, agriculture, chief ports and towns, and Government and religion. Many of the facts are told scappily, and there is no definite attempt to conjure up in the mind of the child a picture of the life of the people. The matter could probably be given to a class informatively by a good teacher in two half-hour lessons, and the class would benefit by the teacher's presentation of the geographical sequence and the geographical relations of causation.

#### Mathematics.

*A General Course of Pure Mathematics from Indices to Solid Analytical Geometry.* By A. L. Bowley. xii+272 pp. (Clarendon Press.) 7s. 6d. net.—The author's intention has been to include the bulk of the results obtained in pure mathematics which admit of rigid proof of a fairly easy character, and are needed by those who use pure mathematics as an instrument in mechanics, engineering, physics, chemistry, and economics. Algebra, trigonometry, plane and solid analytical geometry and the calculus are treated more or less fully. The omission of projective geometry is a little surprising. Of course, it has only become possible to compress these subjects within the limits of 270 pages by throwing overboard a good deal of what is usually included in such a course. Although the interest of the book lies more in the selection of topics than in the mode of treatment, it will be found that some points are handled in a distinctly novel and instructive manner. The treatment of imaginaries is based upon the concept of  $(\times i)$  as an operator, and the chapter on limits and series deals with these difficult matters in a thoroughly satisfactory way. The examples are not very numerous, and teachers will probably require to supplement them from other sources.

*A First Course in Projective Geometry.* By E. H. Smart. xxiii+273 pp. (Macmillan.) 7s. 6d.—This book provides a well-arranged and compact course of higher plane geometry adapted to the use of students reading for pass degrees. It will also be found by

honours students to be an excellent introduction to the more advanced works on the subject. The first seven chapters form a sequel to Euclid. In them are discussed the geometric elements, fundamental principles of projection and duality, harmonic ranges and pencils, inversion, similitude, coaxial circles, poles and polars. The four following chapters contain the substance of what is generally known as geometrical conics. In them Euclidean methods of proof predominate. The remaining seven chapters develop the theory of cross-ratio and its application to the conic. No use is made of imaginaries or involution. Exercises are appended to each chapter, and amongst them will be found drawing exercises, similar to those set at the B.Sc. examination of London University. Historical notes provide interesting information regarding the development of the subject.

*The Teaching of Arithmetic.* By D. E. Smith. v+196 pp. (Ginn.) 4s. 6d.—Teachers who are acquainted with Prof. Smith's book on the teaching of geometry will be prepared to extend a cordial welcome to this new work from his pen. Without disparaging in any degree the labours of English reformers of mathematical teaching, the fact remains that these have for the most part ended merely in syllabuses; while for comprehensive, critical, and constructive reviews of the various subjects we have to look to the other side of the Atlantic. Although Prof. Smith addresses himself to teachers in America, and writes with reference to the conditions which prevail in the schools there, his book should prove of equal value to the teachers in this country. After a brief history of arithmetic, he discusses the reasons for teaching it, what it should include, the nature of the problems and exercises, the question of text-books, methods, oral and written arithmetic, improvements in technique, general principles, subjects for experiment, number games, and concludes with a detailed examination of the gradation of work during the eight years of school life. He shows himself conversant with what is being done, not only in America, but also in the schools of this country and Europe. He cannot be accused of being a partisan of any one method or school of thought. He examines in a judicial spirit the different systems of teaching, and although he does not hesitate to express his preferences, he frankly recognises the provisional character of many of his conclusions, and one of the most suggestive chapters is that in which he points out matters on which further information is desirable. The bibliographies appended to the chapters enhance considerably the value of the book.

*An Elementary Treatise on Calculus.* By W. S. Franklin, B. MacNutt, and R. L. Charles. x+253+41 pp. (Lehigh University Supply Bureau.) 2 dollars.—This book is not very satisfactory from the point of view of analysis. Differential coefficients and integrals cannot be discussed very well apart from a preliminary consideration of limits, and yet "limit" is not even defined. Again, a fly-leaf invites our attention to various points, and in particular to a discussion of Maclaurin's theorem, which is described as "very simple and rigorous." It is difficult to see how a discussion can be rigorous which does not obtain an expression for the remainder after  $n$  terms. The book, however, will probably be found useful by engineering and technical students, as the application of the calculus to problems of the type which concern such students forms the leading feature. The final chapter on scalar and vector fields is of special interest to electricians, and should help them to obtain clear ideas regarding the meaning of the somewhat difficult analysis involved.

**Science and Technology.**

*Exercises in Gas Analysis.* By H. Franzen. Translated by T. Callan. (Blackie.) 120 pp. 2s. 6d. net.—Dr. Franzen has written an excellent introduction to the methods of gas analysis to fill the gap between the somewhat exiguous treatment provided by the advanced text-books of practical chemistry and the larger specialised memoirs of Hempel and Winkler. In view of its industrial importance and the capital training it affords, it is a matter of surprise that gas analysis is frequently ignored in the routine work in chemistry provided by university and technical-school laboratories, although possibly the difficulties in making it an examination subject may account for this neglect. The book starts with a detailed treatment of the fundamental Hempel method, and the student who covers this chapter systematically cannot fail to grasp the essentials of the volumetric measurement and manipulation of gases. A good point in the working instructions is the emphasis laid on the avoidance of errors of experiment, and all through the book there is ample proof that it is a product of the laboratory rather than the study. The translator's work has been well carried out, and the book is excellently illustrated.

*Chemistry.* By G. Darzens. 122 pp. (Constable.) 2s. net. This little book belongs to a new series of translations from the French, entitled "Thresholds of Science." The purpose of the series is to explain, simply and accurately, the principles of the various sciences to those men and women who, from lack of opportunity or some other reason, have grown up in ignorance of the elementary laws of nature. The treatment in M. Darzens's manual is fully experimental, and directions are given for the performance of a number of demonstrations which are necessary for the due understanding of chemistry. The scope of the work is rather wide, embracing, first, general notions of "physical chemistry," such as change of state, allotropy, and solutions; secondly, general chemistry, description of the laws of combination and the properties of the commoner elements and compounds; and, thirdly, technical applications, as, for instance, gilding, glass, porcelain, soap, fats, perfumes, colours, poisons, and medicines. Although necessarily the treatment is scanty, yet the book will no doubt admirably answer the specific purposes for which it was written. The general appearance of the volume is very attractive.

*Manual of Qualitative Analysis.* By W. F. Hoyt. 35 pp. (Macmillan.) 1s. 3d. net.—Mr. Hoyt's book hails from America, and is intended for first year students of chemistry commencing qualitative analysis. It comprises the usual group separations, dry tests, and acid tests. The system adopted is unfamiliar to English teachers, since group tables are eliminated and a series of indices represents the first, second, and so on "derived filtrates." Formulæ are used throughout to represent substances, underlined to stand for precipitates and overlined for gases. An English student in the corresponding state of development would be puzzled when confronted with tests for  $H_2C_2O_4$  and  $HC_2H_3O_2$ . Besides routine analysis, Mr. Hoyt gives useful information with regard to the writing of equations and valency, whilst he incorporates sections on tests for drinking water and the preparation of reagents.

*Industrial Organic Analysis.* By P. S. Arup. xii+340 pp. (Churchill.) 7s. 6d. net.—The fact that the purely academic training of the university does not entirely fit the young graduate for a position in a

chemical works is the *raison d'être* for Mr. Arup's treatise. It is agreed on all sides that the future captain of chemical industry must have had a university training, he must have learned to think scientifically, and he must have had research experience so as to divert into commercial channels the discoveries of the pure chemist. But this is not all. It is only too well known that the brilliant young student of the schools is often of little use in the more spacious atmosphere of the works, hence the need for some post-graduate study of works conditions. For those reasons Mr. Arup's book is to be welcomed heartily, since it endeavours to show the student what manner of work is carried on in the technical laboratory and how it is related to his own more orthodox experience. Not only is the book valuable on this account, but also because it foreshadows important developments, all the more necessary if this country is to recover so much lost ground in chemical technology. The scope of the book is sufficiently broad to serve as a good introduction to many of our chief chemical industries, seeing that it comprises sections devoted to fuels, coal-tar and its distillation products, fatty oils and fats, soap, petroleum and lubricating oils, milk and butter, starch, flour, barley, malt, and food preservatives. The principal determinations are outlined clearly, and the student who works through any of the sections mentioned above will find himself at home when he enters the works laboratory. The book has an illuminating foreword from the pen of Prof. Irvine, of St. Andrews.

*Mechanics for Builders.* Part i. By E. L. Bates and F. Charlesworth. vii+201 pp. (Longmans.) 3s. net.—In this little book, the authors have made a selection of those parts of applied mechanics which are of interest to students engaged in building construction. Brief sections on friction, work and power, and simple machines are also included. The experience of the authors gained in evening classes, composed mainly of artisan students, is that "too much stress can be, and often is, laid upon the value of individual experiment. The poor and inaccurate results obtained by the elementary student in most experiments . . . often discourage him and tend to make him think that his too limited time is being wasted. Far better results can be obtained, in elementary classes, by making the lectures experimental, the teacher himself performing the experiment, the students recording all readings and working out the results in a problem class. By this means the student . . . is much more likely to obtain a result in accordance with what he has been taught to expect." The authors evidently know that they are at variance with most teachers of applied mechanics in this matter, and leave the teacher to adopt the procedure he fancies best. It is probably unnecessary for us to labour the point. Most teachers who have had any experience in teaching any branch of applied science will probably prefer to endure imperfect laboratory records from elementary students in exchange for the other benefits which accrue from the actual handling of apparatus, and the quotation from the book which we give above is unlikely to cause any change in this procedure.

*Practical Drawing.* By R. M. Metcalfe. viii+156 pp. (Edward Arnold.) 2s. net.—This book gives examples and exercises of a practical nature chosen from simple cases in engineering, building, and surveying practice. The arrangement is somewhat arbitrary, but the diagrams are clear, and the part of the book dealing with solid geometry is very satisfactory. The attention of students should be directed to the statement in the preface that "mere copying is to be avoided as

much as possible. . . . Practical drawing is not merely something which is confined between the covers of a book." We doubt whether compasses at rod, each would prove satisfactory, and would suggest that the prices of "instruments required" should be revised in future editions.

**Elementary Mechanics.** By G. Goodwill. 230 pp. (Clarendon Press.) 4s. 6d.—The distinctive character of this book consists in the well-designed experimental basis upon which the theory is built. This way of approaching the subject does not simplify it; it probably makes greater demands upon the reasoning powers of the pupil than the ordinary deductive method, starting from Newton's laws, does. It is not easy to disentangle the essential from the unessential, and to track down the uniformity underlying all the varied results of concrete experiment. But there can be no dispute as to the beneficial effect of training in work of this description, and the student who learns the subject in the manner suggested in this book cannot fail to acquire clear notions regarding such matters as momentum, moment of momentum, and energy. Mr. Goodwill has devised a simple but very effective piece of apparatus, which he calls a vector balance, by means of which he demonstrates the relations existing between different kinds of vectors. It also enables him to introduce the subject of the rotation of a rigid body. The discussion of acceleration is postponed to a somewhat later stage, and it is remarkable how much can be done without the introduction of this concept. The book is elementary in the sense that no use is made of the notation of the calculus, but no problems are introduced which really require it. The book is marked by originality, much thought has evidently been expended upon it, and it is one which all teachers of mechanics would do well to consult.

#### Pedagogy.

**Percentage Tables.** Compiled by Florence A. Yeldham. (Pitman.) 1s.—These tables are intended to minimise the labour of mark-reduction, and, where used, have proved invaluable. At the top of the card are printed all multiples of 10 from 60 to 200. The column headed 100 is printed in thicker type. Under each maximum are all lesser numbers down to 1, so arranged that each number is on a level with its percentage in the column headed 100. A master who wished to reduce marks out of 130 to percentages would look in the column headed 130, and would there find all the numbers from 129 downwards. If three pupils had 111, 89, and 72 marks respectively, he would find on a level with these numbers, in the column headed 100, the numbers 85, 68, 55. These are the required percentages calculated to the nearest whole numbers. When the percentage is exactly halfway between two whole numbers, the pupil is given the benefit of the doubt. These tables could also be used, subject to an occasional error never exceeding one mark, to reduce marks to other maxima.

**The Health and Physique of School Children.** By Arthur Greenwood. xv+96 pp. (Published for the Ratan Tata Foundation by P. S. King and Son.) 1s. net.—The primary object of this book is to make accessible to the general public the substance of the reports of school medical officers with regard to the physical condition of children attending the elementary schools. Though in the main the author allows the statistics to speak for themselves, he examines the value of the evidence they collectively afford, and indicates how they may be used to throw light on

the nature, degree, and causes of ill-health in the elementary schools. He sums up in favour of a great development of the school medical service and its agencies of prevention. Whereas the best-known of similar inquiries (that made by the anthropometrical committee of the British Association about thirty years ago) dealt with fewer than 43,000 individuals, Mr. Greenwood has been able to consider particulars of some 800,000 children, so that his investigations are quantitatively the most complete which have yet been made. As Mr. R. H. Tawney, the director of the Ratan Tata Foundation, remarks in an introductory note, the report furnishes trustworthy data for the school medical officer, the educationist, and the citizen who is anxious to go behind educational machinery and visualise the actual conditions of the children for whom elementary education is provided.

### EDUCATIONAL BOOKS PUBLISHED DURING OCTOBER, 1913.

(Compiled from information provided by the Publishers.)

#### Modern Languages.

André Theuriet: "L'Oncle Scipion et sa promesse." Edited by James P. Park (Blackie's Longer French Texts.) 128 pp. (Blackie.) 8d.

"German Strong Verbs and Irregular Weak Verbs." By Carl Heath. New edition. 116 pp. (Blackie.) 8d.

Alfred de Vigny: "Laurette ou Le Cachet Rouge." Edited by Thomas Keen. (Blackie's Little French Classics.) 48 pp. (Blackie.) 4d.

Paul Déroulède: "Feuilles de Route, 1870." Adapted and edited by R. H. Pardoe. (Oxford Junior French Series.) 112 pp. (Clarendon Press.) With or without vocabulary, 1s. 6d.

"L'Histoire de France en Thèmes (1789-1912)." By T. Pettigrew Young. 128 pp. (Humphrey Milford.) 2s. 6d.

"La Révolution." (Pages Choies des Historiens Français). Edited by W. M. Daniels. 96 pp. (Harrap.) 8d.

"German Conversation and Free Composition." By Taylor Dyson. 120 pp. (Harrap.) Without vocabulary 1s. 3d.; with vocabulary, 1s. 6d.

#### Classics.

"A Shorter Second Latin Course." By Ernest H. Scott and Frank Jones. Alternative to "A Second Latin Course." By the same authors. 200 pp. (Blackie.) 2s.

"Puer Rōmānus." (Lingua Latina.) By R. B. Appleton and W. H. S. Jones. 110 pp. (Clarendon Press.) 2s. 6d.

"Anecdotes from Pliny's Letters." Edited by W. D. Lowe. (Oxford Elementary Latin Readers.) 96 pp. (Clarendon Press.) 1s. 6d.

Cæsar: "Gallic War." Book VI. Introduction, Text, Notes, and Lexicon. By Ll. M. Penn. 128 pp. (University Tutorial Press.) 1s. 6d.

Horace: "Odes." Book IV. Introduction, Text, Notes, and Lexicon. By A. H. Allcroft and B. J. Hayes. New edition. 112 pp. (University Tutorial Press.) 1s. 6d.

#### English: Grammar, Composition, Literature.

"Black's Sentinel Readers." Books I. and II. edited by Prof. E. E. Speight. Each volume contain-

ing eight full-page illustrations in colour. I., 144 pp. II., 144 pp. (Blackie.) Book I., 10d.; Book II., 1s.

William Morris, "Tales from the Earthly Paradise." Edited by W. J. Glover. (Black's Supplementary Readers: Intermediate.) In three books, each with composition exercises. 96 pp. each. (Blackie.) 6d. each.

"Blackie's New Systematic English Readers." First Phonic Primer. Limp cloth cover, 5d. Second Phonic Primer. Limp cloth cover, 7d. First Phonic Infant Reader. Limp cloth cover, 8d.

Byron: "Childe Harold's Pilgrimage." Edited by A. Hamilton Thompson. xxii+286 pp. (Cambridge University Press.) 2s. 6d.

Charles Kingsley: "The Heroes." Edited, with introduction and notes, by Cyril Mayne. with eight full-page illustrations in colour. 217 pp. (Clarendon Press.) 2s. 6d.

"Macaulay's War of Succession in Spain. Edited by C. T. Atkinson. 92 pp. 2s. Text only (in Oxford Plain Texts). 60 pp. (Clarendon Press.) Paper 4d.; cloth, 6d.

"Macaulay's Two Essays on William Pitt, Earl of Chatham." Edited by Philip Guedalla. 194 pp. 2s. 6d. Separately—"First Essay (William Pitt, Earl of Chatham), 1834." 78 pp. 1s. 6d. "Second Essay (Earl of Chatham) 1844." 130 pp. 1s. 6d. (Humphrey Milford.)

"A Dictionary of Classical Names for English Readers." By W. T. Jeffcott. 120 pp. (Macmillan.) 1s. 6d.

"Old Time Stories and Old World Customs." By A. Gertrude Caton. Three parts. Part i., 80 pp. Part ii., 80 pp. Part iii., 96 pp. (Macmillan.) Sewed, 6d. each; cloth, 7d. each.

"Notes on the Teaching of English." Part i. By W. J. Batchelder. 180 pp. (Macmillan.) 1s. 6d.

"English Examination Papers, comprising Questions in History, Political Philosophy, and General English Work, with Exact References to Passages Appropriate to Each Question, and an Original Specimen Essay on Talleyrand and Hints on Essay Writing. By L. Cecil Smith. 130 pp. (Rivington.) 3s. 6d. net

### History.

"Heroines of European History." By A. R. Hope Moncrieff. Illustrated. 192 pp. (Blackie.) 1s. 6d.

"The Religion of Israel. A Historical Sketch." By R. L. Ottley. xii+228 pp. (Cambridge University Press.) 4s.

"Outlines of Greek and Roman History. By M. A. Hamilton. 165 pp. With 5 maps and 6 illustrations. (Clarendon Press.) 3s

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#### The Theory of the Electrophorus.

It may be that there are among your readers many teachers who like myself feel that the explanation of the electrophorus usually given in text-books is unsatisfactory. Some time ago I noticed with pleasure that a writer of an elementary text-book was sufficiently courageous to state that the theory of action was beyond the realms of the elementary student, but occasionally one even meets with a question bearing upon it in an elementary examination paper in electricity. It is, of course, the part played by the sole that needs explaining.

The explanation given by Sir Oliver Lodge in "Modern Views of Electricity," even if it be the whole truth of the matter, is scarcely suitable for elementary students. I have concluded that it is better to explain the condenser before dealing with the electrophorus, and then to regard the latter as a reacting condenser. It is well known and is readily shown that the dielectric of a condenser becomes electrified, electrically strained, or polarised, when the condenser is charged, also that when electricity is forced into one plate there is a corresponding flow out of the other plate, and that this mutual action between the plates is essential to the charging of the condenser. Now to my mind the action of the electrophorus is very similar, the only difference being that, before being placed near the conductors, the cake or dielectric is electrified. In other words, the cake is in such a state that if the conductors of a condenser are placed in position and properly connected, the arrangement will act as a condenser in that electricity will pass into one conductor and out of the other. If only one conductor is present the dielectric cannot exert its influence or inducing force because it cannot "give," and in consequence there is practically no displacement of electricity in the conductor present. The electrification produced by rubbing is probably of a more permanent character than that produced when the arrangement is worked as a condenser.

One thing in favour of this explanation is that an electrophorus, after being charged as a condenser, can be used as an electrophorus without further exciting the cake.

A. H. BELL.

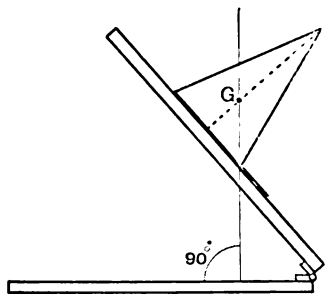
Technical Institute, Sheerness.

### Centre of Gravity of the Cone.

THE following simple method of finding the centre of gravity of a cone or other solid figure which is symmetrical about a vertical axis deserves to be better known than is, I believe, the case.

The procedure, which will doubtless be apparent to most readers from the figure, is to place the object on an inclined plane with its edge just touching a

thin card attached to the plane, and then to raise the latter until the body is just on the point of toppling over. The centre of gravity is now obviously vertically over the point of contact of the edge of the cone with the thin card. A simple graphical construction, *i.e.*, a drawing with the angles taken from the apparatus enables



the student to find the exact position of the centre of gravity on the axis of the body.

Excellent results have been obtained in the determination of the centre of gravity of the cone and pyramid by a quite junior form. The method, of course, lends itself equally well to the case of a bottle full of water or an empty tumbler.

G. N. PINGRIFF.

Market Bosworth Grammar School.

### The World-wide Spread of the Metric System.

IN the Parliamentary debate of March, 1907, the small majority opposed to the Weights and Measures (Metric System) Bill was obtained in part by the argument that our trade with the East might suffer through suspicion and distrust on the part of our Oriental customers if we presented to them such a novelty as the metric system in selling goods. America, also, it was said, might take advantage of this by continuing to use the yard and pound so popular in the East.

This objection was groundless, because the Bill did not relate to foreign trade at all, and permitted manufacturers to make goods for export of any size, pattern, mark, or description, and to sell them as they chose.

The time is soon coming when metric usage, instead of being regarded as a hindrance to British trade with the Far East, will have to be adopted as a necessity in our dealings with China, Japan, and Siam, which have each taken definite steps to establish that system. Already the Advisory Council of China has passed the first reading of a law to that effect, and there are now in Paris two Chinese gentlemen studying at the International Bureau of Weights and Measures the technical details of the subject with the view of completing what is planned.

Japan has for the present four legal systems of weight and measure:—

- (1) The metric.
- (2) The shaku-kwan.
- (3) The kujira-shaku; and
- (4) The British yard and pound.

The Government has declared its preference for the metric system by making it obligatory for the services of the customs excepting a few articles. It is taught in all the public schools, and is prescribed for the army, for medicine, and for electrical work. The carat for precious stones is now 200 milligrams. A specially heavy charge (more than threefold) is made for the

verification of British weights and measures, and the public registers show a steady increase in metric usage.

Siam has for some years employed the metric system with much success on its railways and public works, and last year joined the International Convention of the Metre, from which it has received the apparatus needed for a Central Bureau of Standards at Bangkok. It should interest India to know that the Sanskrit element in the Siamese language has proved useful in connection with the names of the metric units. Siam proposes not to make metric reform compulsory at one and the same time in all parts of the kingdom, but to deal with each province separately at convenient times, a plan which might perhaps be usefully followed by Russia, China, and India.

Russia also, which is now one of the Great Powers of the Far east, has adopted the metric system for several purposes, and has announced to the Decimal Association by a recent letter from the Ministry of Commerce and Industry that the metric system is favoured, but has to await the necessary arrangement of control and inspection throughout the empire with its 165 millions of people. This conversion of Russia is notable as completing the solidarity of all Continental Europe in metric reform, and as being likely to hasten the action of China, her eastern neighbour.

This note is mainly devoted to metric progress in Far Eastern countries, but it must not be forgotten that all South and Central America are either metric or tending to be so. The Australasian Dominions of Great Britain have urgently pressed the question on her notice, and last, but most important of all as a source of external influence, are the United States of America, which have gone far in preparing for reform, and will act with vigour when the time comes, for they know the truth declared in 1790 by Thomas Jefferson, afterwards their President, that the decimal system then established by him in their money would also in weights and measures bring "the calculation of the principal affairs of life within the arithmetic of every man who can multiply and divide plain numbers." The whole world has now approved his words, and the United States of America are on the way to fulfil them.

JOHN H. TWIGG,  
Chairman of Executive Committee.

G. E. M. JOHNSON,  
Secretary.

The Decimal Association, Finsbury Court,  
Finsbury Pavement, London, E.C.

## The School World.

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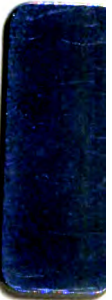
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