



Über dieses Buch

Dies ist ein digitales Exemplar eines Buches, das seit Generationen in den Regalen der Bibliotheken aufbewahrt wurde, bevor es von Google im Rahmen eines Projekts, mit dem die Bücher dieser Welt online verfügbar gemacht werden sollen, sorgfältig gescannt wurde.

Das Buch hat das Urheberrecht überdauert und kann nun öffentlich zugänglich gemacht werden. Ein öffentlich zugängliches Buch ist ein Buch, das niemals Urheberrechten unterlag oder bei dem die Schutzfrist des Urheberrechts abgelaufen ist. Ob ein Buch öffentlich zugänglich ist, kann von Land zu Land unterschiedlich sein. Öffentlich zugängliche Bücher sind unser Tor zur Vergangenheit und stellen ein geschichtliches, kulturelles und wissenschaftliches Vermögen dar, das häufig nur schwierig zu entdecken ist.

Gebrauchsspuren, Anmerkungen und andere Randbemerkungen, die im Originalband enthalten sind, finden sich auch in dieser Datei – eine Erinnerung an die lange Reise, die das Buch vom Verleger zu einer Bibliothek und weiter zu Ihnen hinter sich gebracht hat.

Nutzungsrichtlinien

Google ist stolz, mit Bibliotheken in partnerschaftlicher Zusammenarbeit öffentlich zugängliches Material zu digitalisieren und einer breiten Masse zugänglich zu machen. Öffentlich zugängliche Bücher gehören der Öffentlichkeit, und wir sind nur ihre Hüter. Nichtsdestotrotz ist diese Arbeit kostspielig. Um diese Ressource weiterhin zur Verfügung stellen zu können, haben wir Schritte unternommen, um den Missbrauch durch kommerzielle Parteien zu verhindern. Dazu gehören technische Einschränkungen für automatisierte Abfragen.

Wir bitten Sie um Einhaltung folgender Richtlinien:

- + *Nutzung der Dateien zu nichtkommerziellen Zwecken* Wir haben Google Buchsuche für Endanwender konzipiert und möchten, dass Sie diese Dateien nur für persönliche, nichtkommerzielle Zwecke verwenden.
- + *Keine automatisierten Abfragen* Senden Sie keine automatisierten Abfragen irgendwelcher Art an das Google-System. Wenn Sie Recherchen über maschinelle Übersetzung, optische Zeichenerkennung oder andere Bereiche durchführen, in denen der Zugang zu Text in großen Mengen nützlich ist, wenden Sie sich bitte an uns. Wir fördern die Nutzung des öffentlich zugänglichen Materials für diese Zwecke und können Ihnen unter Umständen helfen.
- + *Beibehaltung von Google-Markenelementen* Das "Wasserzeichen" von Google, das Sie in jeder Datei finden, ist wichtig zur Information über dieses Projekt und hilft den Anwendern weiteres Material über Google Buchsuche zu finden. Bitte entfernen Sie das Wasserzeichen nicht.
- + *Bewegen Sie sich innerhalb der Legalität* Unabhängig von Ihrem Verwendungszweck müssen Sie sich Ihrer Verantwortung bewusst sein, sicherzustellen, dass Ihre Nutzung legal ist. Gehen Sie nicht davon aus, dass ein Buch, das nach unserem Dafürhalten für Nutzer in den USA öffentlich zugänglich ist, auch für Nutzer in anderen Ländern öffentlich zugänglich ist. Ob ein Buch noch dem Urheberrecht unterliegt, ist von Land zu Land verschieden. Wir können keine Beratung leisten, ob eine bestimmte Nutzung eines bestimmten Buches gesetzlich zulässig ist. Gehen Sie nicht davon aus, dass das Erscheinen eines Buchs in Google Buchsuche bedeutet, dass es in jeder Form und überall auf der Welt verwendet werden kann. Eine Urheberrechtsverletzung kann schwerwiegende Folgen haben.

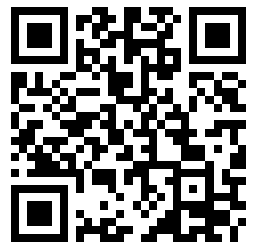
Über Google Buchsuche

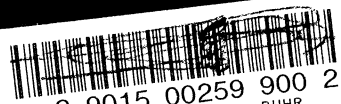
Das Ziel von Google besteht darin, die weltweiten Informationen zu organisieren und allgemein nutzbar und zugänglich zu machen. Google Buchsuche hilft Lesern dabei, die Bücher dieser Welt zu entdecken, und unterstützt Autoren und Verleger dabei, neue Zielgruppen zu erreichen. Den gesamten Buchtext können Sie im Internet unter <http://books.google.com> durchsuchen.

This is a reproduction of a library book that was digitized by Google as part of an ongoing effort to preserve the information in books and make it universally accessible.

Google™ books

<https://books.google.com>





B 3 9015 00259 900 2
University of Michigan - BUHR

SCHOOL WORLD

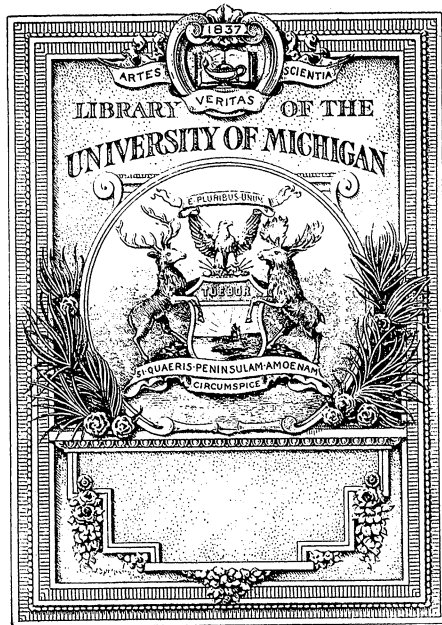
14

1912



L
16
.S34





The School World

A MONTHLY MAGAZINE OF
EDUCATIONAL WORK AND PROGRESS

VOL. XIV.

JANUARY TO DECEMBER, 1912

London

MACMILLAN AND CO., LIMITED

NEW YORK: THE MACMILLAN COMPANY

1912



The School World

A Monthly Magazine of Educational Work and Progress.

NO. 157.

JANUARY, 1912.

SIXPENCE.

SWEDISH GYMNASTICS FOR ENGLISH SCHOOLS.

By FRANK C. SHRUBSALL, M.D.

ALL animals in their earlier stages of life undergo a process of physical and mental education; those that cannot, or do not, profit by their experiences fail in the struggle for existence and suffer death—Nature's uniform penalty for failure. With uncivilised man physical fitness is an essential to enable him to obtain his daily food and avoid or overcome his enemies. In civilised communities the struggle takes on a different form; but the weakling, though sheltered to some extent from the perils of his ancestors, faces equal, if not increased, dangers in the form of disease. A sound body is then needful for all, even if the importance of mental attributes overshadows mere physical traits. Physical education retains much of its old value, though its direction is modified with the changed form of human activities.

The earlier stages of physical education are spontaneous; the child at first makes vague movements which gradually become more co-ordinated and responsive to the control of the mind and to the receipt of sense impressions. Simple as it may seem, this is really the hardest part of all education, and the step to the complicated balance exercises of the gymnast is but small compared with the first efforts to stand and walk, which are, as a rule, learnt solely by the personal experience of failure. Gradually playing alone or with companions, the child acquires a perfect control over his main groups of muscles and the staying power which will be required in adult life.

Games involving the natural movements of running, jumping, and throwing are adopted by imitation of older children. When the gregarious period of life is reached, rules are necessary and games are organised for the sake of convenience. Evolution has proceeded thus far in all quarters without obvious educational intent. This free, open-air life leads to the full physical development, as exemplified by the physique of many primitive tribes. In civilised communities the course is interfered with, and children are kept for many hours day after day under conditions of

restraint and at tasks which often involve bad attitudes, in practice, if not of necessity. Special precautions have then to be taken to supply at specified times that which is at all times the natural heritage of the primitive child.

The most appropriate form of exercise for any individual depends on many factors, of which age and temperament are the most important. Exercise must be adequate for the development of the muscles and the respiratory and circulatory mechanisms, corrective of any faults derived from a school environment and exhilarating in its effects on mind as well as body. The greatest mental relief occurs in spontaneous play, which affords ample, though erratic, muscular movement, satisfying the needs of the child for the moment. This form is suited for short intervals. In longer intervals organisation is necessary to ensure that all children get a share, since games have a tendency to increase the strength and skill of the best at the expense of the worst, however carefully the sides are selected, while there is a risk that a game organised for the sake of the weaker may become unattractive to the majority with average attainments. Other methods, therefore, are required to train those below the average in physical attainments to hold their own in sports and get their fair share of exercise.

This is the special function of properly applied gymnastics. Being of a somewhat less recreative nature and presenting a corrective element, these constitute a part of formal school work, and the time occupied therein must in no wise be deducted from that allotted to games. The requirements of a gymnastic system for school use is that it shall be organised, adapted to all ages without change of type, strictly progressive in matter of difficulty, and beneficial in its action on the general carriage and deportment of the pupils. These postulates are fully met by the Swedish system, which was evolved on a therapeutic basis. Ling started to solve the problem of restoring the muscular strength and staying power of invalids, and was gradually led on to the question of the training of youths and children.

His methods, though based on the physiological knowledge of the time, were really an empirical exploration of possibilities, and received their

justification from practical experience. The motive of the system is to develop uniformly the powers of a whole class rather than to encourage special skill in the stronger and more proficient. The whole body is exercised in a definite order and with a well-regulated progression, so that the easier directly prepares for the more difficult and more severe movements alternate with those requiring less effort. It is an essential principle that each exercise should be completely and correctly carried out to the word of command. This completeness of execution is perhaps the most essential feature, though more attention is attracted usually to the setting of the rhythm to the word of command, rather than to other methods of noting time, such as by music.

The German system has not been organised on an adequately progressive basis. Its free-standing movements are intended to be taken to music, and lose much of their interest when, as in German schools, this is not available. The apparatus work on the bars, rings, and horse forms a suitable recreation for those sufficiently strong to perform the exercises in correct form. If carried out by those who are too weak or inexpert there is a possibility of producing poking heads and round shoulders, which renders this system ill-adapted for school use. Dumb-bell and wand exercises, musical and fancy drills, are more allied to calisthenics, and derive any corrective effect they may possess from Swedish influences. These have their place as organised games, but do not replace either gymnastics proper or outdoor and more vigorous games. Corrective and uniform developmental features are the main requirements of formal school gymnastics, and if these cannot be provided it would be better to spend the time in games. The value of this corrective element is, however, such as to render gymnastics as important a subject as any in the school curriculum.

The question whether formal drill and gymnastics should form part of the course for children under twelve has led to some divergence of opinion among both teachers and inspectors. Some urge that drill is undesirable on the ground that the movements are stiff and monotonous and lead to the child returning to the class-room "with a dulled intelligence and a lack of energy for work of any kind."

The experience in Scandinavia has been that school gymnastics exert a most beneficial effect on the physique, posture, and carriage of children of *all* ages. During the thirty years which have elapsed since the more general introduction of physical exercises, the average stature and weight has shown a marked rise, in spite of the coincident increase of urban environment. The children thoroughly enjoy the class, and there is no evidence that they are less able or fit for other work after the gymnastic period than after any other. The actual table of exercises varies with the age of the children, though the general plan and order remain unchanged. Pedagogic games, fancy marches, and dances take a prominent position,

especially in Sweden, but the exercises are arranged to have definitely corrective effects. The interest of the children is increased by the fact that the exercises are nearly everywhere taken in a gymnasium, with the aid of the apparatus used by their elders. The table is varied from time to time, in accordance with the needs of the class, thus preventing monotony.

The arguments against drill are in the main evidences that in certain localities the classes are not sympathetically taken, or that the teacher is hampered by cast-iron regulations contrary to the whole spirit of physical education. If the results of the physical exercises are said to be unsatisfactory, inquiry should be made into the mode of conduct of the class and the sufficiency of the time allotted. Daily exercises may well show good results when two periods a week appear not to do so.

At the earlier ages free-standing exercises suffice to produce excellent effects, though if an equipped gymnasium were available there would be all to gain by making use of it under the charge of a thoroughly trained teacher. These gymnastics make considerable calls on the mental as well as the bodily activities, and, to produce their best effects, should be taken during morning school; little must be expected from them if, as is so often the case, they are relegated to the last period of afternoon school.

Severe criticism has been directed by certain modern physiologists against certain special groups of exercises employed in the Swedish system. These criticisms are usually of a theoretical nature, and it cannot be too thoroughly emphasised that the claims of this system rest on the test of practical experience, not on the original explanations which were based on the physiology of the early nineteenth century. Swedish gymnastics have spread far beyond the limits of Scandinavia into Holland, Belgium, France, America, and even Germany. They have been adopted by the British Army and Navy, and form the basis of the syllabus of free-standing exercises issued by the Board of Education.

It is sometimes objected that the breathing exercises detract from the elasticity of the chest-walls, and so interfere with the power of control necessary for the correct use of the speaking and singing voice. To show that this is not so, it should be sufficient to point out that many well-known Swedish operatic singers have passed through the full course of the Central Institute of Gymnastics at Stockholm and are members of gymnastic clubs. The effects alleged can only be produced when the movements are taken in an incorrect manner. A loss of elasticity could also be produced by remaining long without proper breathing in positions of forced inspiration. These, however, are conditions which would not arise with proper progression and supervision.

In Swedish gymnastics, when the supply of apparatus is adequate to the size of the class, all the pupils will be exercising at once; the waste of time which often occurs with other systems of

apparatus work is thus avoided. As all the class will be doing the same exercise, supervision by the teacher is rendered easier.

The special advantage of the Swedish system having originated from a therapeutic basis renders trained supervision necessary. Many of the exercises are specially directed to combating spinal curvatures and the weakness of special groups of muscles. It must be borne in mind that while suitable and correctly executed exercises are able to correct faulty postures, unsuitable exercises, or even suitable exercises incorrectly performed, can produce and exaggerate bad positions of the body. Thus movements which are asymmetrical either in frequency or strength would develop the muscles unevenly and produce that very curvature of the spine for which these lateral movements are designed to be corrective. Many exercises designed to correct a bent back and round shoulders necessarily involve a hollowing of the lumbar spine; while others which, correctly performed, straighten out the dorsal spine, can be apparently, though quite incorrectly, performed by bending back in the lumbar region. Unless the teacher is trained and observant, and the costume of the class such as to enable the real movements of the back to be seen, it is possible to produce a hollow back without correcting the previously existing round shoulders. Even the fundamental standing position at attention is usually taken wrongly for some time by children who are trying hard to do their best, and if the teacher does not observe and correct this harm may result.

The same fault appears during many of the simple arm movements, such as upward bending and stretching, and must inevitably occur if the sleeves of the costume worn are at all tight. There are more opportunities for faulty positions when apparatus is employed than when the exercises are entirely free-standing. It must not for a moment be thought that these difficulties and dangers, which only come into existence when the teacher is untrained or the class improperly dressed, would be avoided by the use of some other system of gymnastics. The same type of movements appear in all forms and produce the same effects without the counteracting movements for necessary bending in the loins being enforced, as is always the case in Swedish gymnastics. The real solution is never to entrust physical exercises to an untrained teacher. No one would dream of placing a teacher who had never learned mathematics in charge of a mathematical class, where the worst that could happen would be a failure to acquire knowledge, a purely negative result; whereas often untrained and therefore necessarily, though not wilfully, unobservant teachers are set to put a class through gymnastic exercises with the grave risk of producing a permanent positive result in the direction of bad carriage, and even bodily deformity. If it is argued that these results have not been noted in our elementary schools, there is the obvious reply that up to the present the exercises

have not been taken often or vigorously enough to do much harm—or good.

Objections have been raised to the Swedish system on the grounds of dullness; this is entirely a matter of the teacher. The interpretation of a table can be varied to suit the mood and condition of a class, stress being laid on the more generalised and exhilarating sections if the class is dull, and on the composing elements if it is excited. Variations within the table to other exercises in each group can be made if the conditions are found to be different from those anticipated when the table was drawn up. In any case, it is essential that the teacher should have a free hand in drawing up the tables and graduating the exercises to suit each class. If one table for each standard is drawn up and used on every occasion for a whole term by all children in a widely differing series of schools, no other result than dullness and lack of progress could be anticipated. The best teacher could do little if thus handicapped. If the teacher is incapable of drawing up, interpreting, and modifying tables, it would be better to trust to games rather than to profess to teach Swedish or any other form of gymnastic exercises.

It must not be forgotten that it takes as long, if not longer, to train a teacher of physical education as it does to train a teacher in any other subject of which he or she has no preliminary knowledge. Two years is none too long in which to learn both the principles of the subject and their application. The teacher has first to learn to perform the exercises, then to learn to observe and correct mistakes in the execution of the exercises, and finally to learn actually to teach the subject and to recognise the indications for progression and variation in classes of varying ages and types. To have followed a course of weekly lessons of an hour each on theory and practice, which includes instruction in personal performance as well as in the art of teaching, does not constitute an efficient training. Such slight knowledge is almost more dangerous than none at all. If a system is worth adopting at all, it is worth adopting efficiently.

The training of the prospective teacher being a matter of such importance, it is most satisfactory to note the recent opening of the Central Institute for Swedish Gymnastics in Paddington Street, London. This college for men students, under the direction of Herr Alan Broman, will provide a first year's course fitting students for posts in elementary schools, and a second year's course enabling the graduate to take charge of any school of whatever standing. Anatomy, physiology, theory of movements, hygiene, and kindred subjects necessary for a complete grasp of physical training will be taught by experienced teachers. This will be a noteworthy addition to the facilities for training in this subject. So far the only college for men has been that attached to the South-Western Polytechnic, at which a one year's course has been in progress during the last two years. The chief difficulty that may be fore-

seen is the cost of training. Seventy-five pounds a year, for two years, for tuition only is a tax even on those of comparative means. If a would-be teacher in a public school has to take a university degree and then go through such a course, the emoluments of his prospective post would need to be higher than is usually the case with assistant-masters. For elementary-school teachers the fees would seem to be prohibitive, unless the Board of Education proposes to exercise pressure on local authorities materially to raise the salaries of teachers or to provide scholarships, such as have been provided for the South-Western Polytechnic through the liberality of Sir Malcolm Fox, late his Majesty's chief inspector of physical training.

There is the greater need for such help, as elementary schools are far behind secondary schools in all that appertains to physical education. Boys' schools, too, are behind girls' schools in this respect, largely on account of the absence of trained teachers—a want that may now be filled. With the excellent colleges for women at Dartford, Bedford, Birmingham, Chelsea, and Dunfermline, the girls' secondary schools have been amply supplied, but there is need for some provision for the teachers in the girls' departments of the elementary schools. There is, however, now every indication that the Board is devoting some of its energies to improving matters in this respect.

As this new college has been most cordially welcomed by the Parliamentary secretary representing the Board, and as its gymnasium is fully equipped, so that it is to be presumed the students even in the first year will be instructed in apparatus work, it is possible to look forward to a time when every elementary school will have a gymnasium and not have to rely solely on free-standing exercises. As a sign of progress, and in the hope of a better future for the physique of the youth of the nation, the new "Central Institute" will be cordially welcomed.

TEACHERS' VIEWS OF EXAMINERS' REPORTS ON LOCAL EXAMINATIONS.

IV.—GEOGRAPHY.

By A. H. HARRIES, B.A.

Central Secondary School, Sheffield.

THE Oxford examiners' report for last year differs but little from that of 1910. In the main, it consists of a warning against (1) irrelevant answers; (2) vague answers, which are described as useless; (3) learning by heart.

The special report on geography issued by the Oxford examiners offered the following criticisms, some of which are both cogent and damning:

(1) That the place given to geography in the school is unsatisfactory, as shown by the extraordinarily small number of candidates of real merit.

(2) That knowledge of topography and regional geography was deficient. [This criticism was

also amongst those advanced in 1910.] That there is a tendency to abandon map work and to deal only with text-books. That there was no real geographical conception of such terms as desert, forest, &c.

(3) That candidates do not possess efficient means of expression.

(4) That there is not a sufficiently systematic teaching of physical geography—the general rules not being thoroughly assimilated.

(5) That knowledge displayed was often simply reminiscent verbiage.

The recurrence of such complaints as these must rise out of either inattention to the suggestions published by the examiners, or out of the fact that, having consideration for the time that may be expended upon it, and the equipment of children in related subjects, the syllabus is an impossible one; so that, no matter how well the suggestions are attended to, the results cannot fail to be bad. That the former is not the cause is likely, since in certain points noticed by the examiners, improvement has occurred, and it is my business to show that the syllabus encourages the faults which the examiners have indicated, and that so long as the present syllabus is in vogue the same faults must, in bulk, reappear. In short, my contention is that the examination in this particular subject is, for one reason or another, beyond the capacity of the majority of boys who enter for it, and is unsatisfactory—

(1) In so far as it is a goal of progress instead of what an examination should be—a measure of progress simply;

(2) So far as it pretends to set a standard of work for a year, or any other period, thus depriving the teacher of scope;

(3) So far as it demands a knowledge which for any valid psychological reason may prevent a boy of average mental development from obtaining a fairly high percentage of marks.

It is held, further, that when success has attended the efforts of a dull boy, the marking has been too lenient, and that, again, the examination has not fulfilled its purpose because proper discrimination has not been used. An easy system of marking never justifies the setting of a stiff paper upon work that is out of keeping with the state of development of a child.

It is convenient to discuss the requirements of this examination as expressed in the corresponding syllabus before going on to any consideration of papers and actual examination. Here we have a syllabus which may well claim to demand a knowledge of the foundations of everything in earth knowledge, for not only must the principles of distribution of mankind, and the chief food materials together with distribution of topographical features be understood, but the pupil must also have an acquaintance with the facts of meteorology (not merely climatology), cartography, physical geology as such. To contend that these subjects are only used as stores from which we borrow facts is useless when "questions" such as the following are set:

"Compare the characteristic features of the river systems in regions where the surface consists of (a) clay, (b) limestone. Account for the differences. Give examples of each type of region."

"What are the chief types of coast found in Great Britain?"

One cannot resist the conviction that verbiage and formalism must arise out of an examination upon such a syllabus. Again I beg most forcibly to state that "geography" of this kind is most unacceptable to boys and girls, who cannot have the necessary "apperception mass" with which to assimilate such material. I note, in this connection, that Mr. H. J. Mackinder, in his scheme for a four years' course for secondary-school children, suggests that before entering on their first year's course the pupils must have some knowledge of elementary geology. While still respecting Mr. Mackinder's university work, I may say that, though subjects studied at a university must be followed in their ramifications into other subjects, yet that it is clear to the teacher that few of these subjects can in a like manner be completely taught in schools. As a young teacher of history, I found myself, soon after leaving college, expounding the mysteries of Erastianism and Arminianism to boys of thirteen or fourteen, because I considered it necessary to their proper understanding of the position of the Church in Charles I.'s time. I soon found I had to re-read my subject from the point of view of my pupils. One wonders how many examiners have re-read their geography from the schoolboy's point of view before setting an examination paper!

Now is it to be wondered at that when general geography occupies such a large part of the syllabus, and consequently of our time, regional geography and topography, being old-fashioned, are ignored? Of necessity, recourse is had to the text-book, and intimate acquaintance with the map is a thing unknown. The mental cog-wheels slip, and the product is a feeble thinness mingled with chunks of unassimilated matter. By the way, I note that in 1910 the Oxford examiners suggested that the geography of the British Empire was apparently slurred over: in 1911 Paper C contained one question upon this important side of the syllabus—so much for regional geography. It should be pointed out that this general geography, which usurps the position of the regional and topographical work, in reality leads to the greatest evil that pervades our modern geography teaching, that is, indefinite aim. Could we but concentrate our work upon man, his abode, his food, and his materials of commerce, we might eventually evolve a satisfactory scheme and obtain satisfactory results.

It is natural to ask what function an examination should fulfil. We can be certain that it should reveal: (1) knowledge—in its narrowest sense; (2) a capacity to receive suggestion. Provided the first only appears in the written examination paper, we may be certain that error

lurks somewhere. We are told that the papers reflected teaching strongly, and that much of the knowledge displayed was mere reminiscent verbiage. Explanation comes easily to those who examine the lists of boys and girls who have obtained first-class honours, for in those cases in which children of capacity have been entered from the same school, their names appear almost invariably bracketed together. Evidently the teacher has here been examined by proxy. Moreover, suggestion has not been present in the paper, for it is well-nigh impossible that all these children who, coming from the same school, and who are judged of like ability, have had their associations appealed to in a satisfactory manner by the questions set. The examination does not seem to test individuality.

Of all the weaknesses pointed out by the examiners, the inadequacy of power of expression seems the worst, for it makes quite clear that the material conveyed to the boy has made an impression that is too faint to allow its being acted upon. Again, this weakness may be attributed in part to the unfitness of the matter that is used; but blame may be laid at the door of the teacher. Personally, I am inclined to blame the syllabus and examination once more, because, as the examiner states, pure composition is well done at the examination. I am quite convinced that a boy who is not a born journalist cannot answer properly many of the geography questions set at the Oxford Local senior examination, if only because of the general character of the questions. I asked one of my pupils what he thought of the questions, to which question he replied, "Common sense"—a highly unsatisfactory answer, since we know that common sense is really one of the hardest things to write, and, moreover, is a quality seldom possessed by a boy. When I say this I do not mean to absolve the teacher from all blame, since it is possible that he has not given his pupils sufficient practice in writing generally of general things. But is it worth it?

Usually, six questions have to be answered from an Oxford Local paper. The time allotted to the six questions is one and a half hours, which works out at fifteen minutes for each question. The examiner expects answers that are reasoned, and he must therefore postulate a large store of unformulated fact to have been laid up. Within the time allotted, he desires that attention be brought to bear on the question, that the facts be formulated, that expression be good, and the spelling be perfect; and it is not strange if he is treated to a number of answers that are a fantastic patchwork of "reminiscent verbiage," interspersed with a few tags of "fact" that are ludicrously out of place.

The accumulated charges of recent years made by the Cambridge examiners are the following:

- (1) That there is a lack of precision in knowledge and expression.
- (2) A failure to realise the exact meaning of fact.

(3) An inability to answer questions upon which the text-books say nothing, or next to nothing.

(4) That too few maps are made in answer to questions, and that those that are made are often ineffective.

(5) That the display of knowledge of physical geography and climatic control over industries, development, &c., was poor.

(In fact, the report published in 1911 condemned all branches of work, physical and political.)

(6) That the compass-points N.E., N.W., &c., are often interchanged.

Now, I beg humbly to point out that the examination work is so heavy and extended, and the syllabus so vague, that it offers the teacher no inducement to put his pupils through a course of practical work with the view of giving them a more intimate acquaintance with the matter of geography: naturally, there follows a certain haziness as to fact and a looseness of phrase, for clearness of which no amount of map-drawing in examinations should stand substitute, since, however useful map-drawing may be in school work, examinations must be a real test of that which is to be the chief mode of expression in after-days—the word, written or spoken. As to the third item of complaint, need anything be said, since the examiners themselves recognise the weakness of the text-book? As to complaint No. 5, it may be suggested that the principles of physical geography are not understood, at any rate by junior candidates, because the syllabus does not allow of a proper exemplification of main general rules as to winds, currents, &c. It is in the working-out of the results of these rules—*over the whole world*—that a thorough appreciation of their meaning, and a thorough grasp of their existence, are obtained. A more thorough grasp of the principles of climatic control might be given to candidates if the syllabus insisted specifically on a comparative treatment of the regions in the great land masses prescribed. Complaint No. 6 is surely due to the fact that insufficient time is given in the examination for proper consideration of the answer to a question.

The Central Welsh Board syllabus for 1911 is rather difficult in so far as it necessitates a study of exceptionally difficult units in the first year. But the papers that were set in July were admirable, since they showed an appreciation of the fact that, after all, geography starts with the earth as it is, and develops results of its condition, and that explanation—in the form of physical geography, geology, and climatology—is, in the end, only explanation, and must take the place that befits it in a school course. This syllabus demands some practical work, and the result has been, I am told, the fitting up of a number of geographical laboratories, which cannot fail, in good hands, to produce good results. Map work is insisted on as a means of understanding distribution. Recent reports have been satisfactory, and this is not surprising if we remember the ex-

amination conditions and the fact that most schools devote one and a half hours a week to the work—and some as long as two and a quarter hours.

Far be it from me to say that the schools are perfect in the strategy and tactics of teaching geography. Even though the Local examinations get rid of their chief failings of generality, &c., the school would yet have much to put in order with the view of securing good results. In the first place, it is essential that at least one and a half hours a week should be given to the teaching of geography; and even this is insufficient if much map work is to be done and a good basis in experience laid ready for the more abstract work. But this question of time must not be laboured, lest teachers of other subjects, who, in these days of associations, are as enthusiastic as the geography teacher, clamour for the extinction of geography. While granting that giving of more time to this branch of work would be beneficial, one is convinced that shortness of time forms a cloak for evils which may, to a great extent, be removed while yet the time-table remains in its present state.

Having regard for the criticism of the study of regional geography offered by the examiners, we might look to our syllabuses. It is possible that much of the failure to give an adequate conception of the full geographical meaning of the words forests, deserts, &c., to foster an appreciation of regional parallelism, and to ingrain a thorough knowledge of some very easy scientific essentials, may be due to the fact that training in the lower school is inadequate. If with boys of twelve years of age we began by teaching them the world-wide application of the main geographical rules, instead of starting at home with a unit that may be regarded as an exception to all rules; and based upon this first year's work a concentric system consisting of the treatment of typical units for the whole inhabited world from north to south, we should find that at the age of seventeen these boys would have a sturdy, if elementary, knowledge of the regional geography and of the general phenomena of geography.

At present those teachers who are responsible for Oxford Local work in geography complain that impressions made during the first, second, or third year in secondary-school life are obliterated in turn by those gained in succeeding years—a statement that amounts to a confession of the existence of the quintessence of bad strategy in their schools, and one that sanctions the utterance of a platitude for which I shall not ask pardon—that the work of second, third, and fourth years must be built upon the foundation laid in immediately preceding years. That thinness of result which has been noted as following the use of a text-book might well be remedied by the liberal use of original accounts of travel and exploration; or, if these are lacking, by the use of good descriptive geographies, a few of which are already on the market. It is useless to look for perfect text-books, for these are satisfactory only in the hands

of the teachers who make them; every teacher must make his own.

The policy of preparation for an examination that is nearly always unsuitable leads to a damping of the ardour of both pupil and teacher. So we are faced with the question: Is the examination to be made to suit the school, or the school to suit the examination? And since the school is the essential, we are constrained to think that examinations must somehow be modified to meet local needs.

V.—MATHEMATICS.

By R. WYKE BAYLISS, M.A.

Whitgift Grammar School, Croydon.

(1) *General Principles.*

IN glancing over the reports of the examiners upon the Oxford and Cambridge Local examinations in mathematics one cannot fail to be struck by the severity and uniformity of the criticisms passed upon the work of candidates throughout the country. Such strictures, if made against any one school, would amount to nothing less than a censure upon the teaching of the mathematical masters and the organisation of the staff. When, however, one finds that identical allegations are brought against nearly every centre, it is clear that we must look for some cause much deeper and far more widespread than bad organisation or defective teaching. Whatever it may be, it is something which affects nearly every subject in the curriculum. For it is specially noteworthy that similar strictures, of at least equal severity, are made with regard to most of the other examination subjects.

With whom or what does the fault lie? The following might be suggested: (1) the candidates, (2) the teachers, (3) the examiners, (4) the text-books, (5) the curriculum.

To say that the fault lies with the candidates is to indict a nation, or at least the rising generation thereof. Yet some there are who view certain modern tendencies with great alarm. Our youths devour immense quantities of trashy novelettes, without experiencing a tithe of the pleasure or excitement that their fathers derived from the perusal of "Waverley" or "Robinson Crusoe." They flock to cinematograph shows, but remain absolutely unmoved by any scenes except those that depict the crudest melodrama. Most of them dismiss any subject requiring mental effort with the epithet "rot." Any enthusiasm for study is suppressed by the ridicule of their fellows—or even of their parents. How rarely do we find a boy struggling to solve the arithmetical puzzles which used to be so common in the magazines of a generation ago! Nothing less than a £100 prize will tempt the majority now! All this, however, although it may help to explain the general carelessness and inaccuracy which the examiners denounce, will not suffice to account for the want of knowledge, observation, and memory which are equally prevalent.

It is very easy to denounce the teachers; but

the teachers are not yet a professional body, and they cannot disentangle themselves from the network of coils spread by examiners, inspectors, educational experts, and parental influence. Still, it is their duty to counteract the prevalent evils of the day, and for any failure they must accept their share of blame. Nevertheless, every educationist who has reached middle life knows well that in matters of training, expert knowledge, enthusiasm for their work, and readiness to adopt new ideas, the teachers of the present day immeasurably surpass those of the preceding generation. We must seek a deeper cause still.

Examiners, again, although generally less ready to adopt new ideas, have shown themselves willing to modify their papers according to the views of expert teachers, and in many cases have gone farther in the direction of the "new" education than the mass of the teachers themselves. One cannot deny that the questions now set in examinations often meet with a great deal of execration from teachers, pupils, and parents—especially from those parents who are unacquainted with modern ideals of instruction. But the inclusion of difficult questions in an examination does not account for the facts that "many candidates had no idea of the method of practice"; "a question on profit and loss was beyond their reach"; "kilometres were confused with millimetres"; "mistakes as to the position of the decimal point were frequent"; or that, "in an example on the simplification of fractions, the number of those who betrayed ignorance of the correct way of dealing with the signs plus and minus in the final addition was simply astounding."

With regard to text-books, these can scarcely be blamed in those schools where they are practically non-existent. The *absence* of text-books in many schools (in spite of the immense output of the publishers) may perhaps be more responsible for the present chaos than many of us are yet willing to admit. There is bound to be a certain want of coherence in the instruction, wherever oral teaching is carried to an extreme, and also wherever too great a variety of exercise-books is in use. The individual collection of examples may be excellent, but if these be diversely treated by the teachers the results may be disastrous. Perhaps we shall find it necessary to revert once more to a considerable use of text-books in order to promote uniformity.

The overloading of the curriculum has become a by-word; yet there is very general agreement that it cannot be reduced. In the days when little science, less history, and no geography were taught, it was quite possible to give boys of average ability a fair acquaintance with the classics and the rudiments of mathematics. But now only the picked boys can reach the same standard in mathematics as the average boy did a few years since. And, besides this, a much larger percentage become candidates for the Local examinations. Hence we find that the mathematical knowledge now shown by the

average candidates covers a very much smaller area than it used to do, and is, at the same time, more shallow. Nevertheless, these facts do not excuse hopeless inaccuracy in what they are supposed to know. We must look beyond the curriculum for a complete explanation. Where, then, are we to seek for the main cause of the alleged failures?

The present writer yields to none in admiration of the new ideals in education generally and in mathematics in particular; but ideals alone are insufficient for this workaday world; we must have "practical politics." Have we set before us an unattainable ideal, and, falling short, sunk into a morass from which only persistent effort will extricate us?

If we take a bird's-eye view of the educational world, we perceive writers of articles and of textbooks, lecturers, inspectors, and examiners, headmasters, assistants, and experts, all pressing forward together beneath a banner on which are inscribed the words "Thou shalt not cram." What a splendid ideal! No more merely superficial knowledge! No more preparation of set books and stock examples! No more mechanical repetition of facts and methods! No more learning by heart! No more reliance upon memory! The boy of the future shall know nothing that he has not discovered for himself! All his knowledge shall be founded upon reason, not upon experience! That is to say, *of course*, that his knowledge shall be founded upon practical experiments, not upon mere abstract reasoning!

And so we tell our boys to measure certain distances, finding that $AB=2.5$ inches, $BC=0.9$ inch, and $AC=3.4$ inches. We need not worry if some boys make $AB=2.4$ inches, and $BC=0.8$ inch, because, of course, the *principle* is the same, and they will not be so stupid as to suppose that accuracy is unimportant! Then we ask them what they observe; and, of course, they observe nothing! So they measure more distances, and yet more; until at last some bright spirit suggests that "when we add decimals we must place the point under the point." How delightfully lucid!

It is true that we have spent some hours over this work; but what of that? The pupils will never forget it, for they found it out for themselves! At least *one* boy did, and *we* did not tell the others! At any rate we have avoided the bad old system of cramming or ramming a new idea into their heads!

And now our chief mathematical master comes along and says, "This work seems to take a longer time than I expected. But we must, at all costs, make them thorough, and avoid mere cramming. So we shall not attempt to cover quite as much ground this year as we used to do. There is nothing like getting a good foundation. Teach them to reason, and do everything by actual experiment!"

After the terminal examination the headmaster says, "It is very strange that so few boys can add correctly. Do you think that someone has

been telling them how to do it instead of making them find out? Or have they been doing it merely mechanically in class, without reasoning, so that they lose their heads in the examination when they have to think? Perhaps we had better spend more time over the elementary rules."

One day an inspector arrives. "I deeply regret," he reports, "that I found a master actually telling his boys that when adding up a column of decimals they should be careful to see that they were placed *point under point*. If they had been properly taught they would do this intuitively. It is evident that insufficient time is devoted to the elucidation of elementary principles."

The year comes to an end. The boys move up into another block. They learn to do interest and square root; but it is really most extraordinary how careless they are, even in such a simple matter as the addition of decimals! Yet we have been so very careful to avoid anything of the nature of cramming!

Another year ends, and yet another. And then they undergo the ordeal of a university examination. "Many of the candidates," the examiners report, "were quite at sea in dealing with decimals. It would be well if more time were devoted to mastering this subject. There were signs that some of the pupils had been crammed rather than taught."

Following this comes a letter to *The Times* from an Indignant Parent. "When," he asks, "will examiners learn to set questions that really test intelligence and do not encourage cramming? My son is a particularly bright boy, yet he failed in the recent Local examination. Upon inquiry I found that, having to subtract 2.876 from 12.87 , he proceeded as follows:

$$\begin{array}{r} 12.87 \\ - 2.876 \\ \hline 10.006 \end{array}$$

Is not this clear evidence that his masters had devoted insufficient time and care to the real principles of arithmetic? As the boy is neither idle nor careless, it is obvious that his time was wasted over catchy puzzles for examination purposes! In other words, he had been simply crammed."

Lastly, we find a leading article in our morning paper informing us that an education committee has decided to give up written tests and substitute an oral examination in order to avoid cramming!

The circle is complete, and the unanimity is marvellous. All with one accord exclaim, "Thou shalt not cram!" But are we really agreed? Do we all mean the same thing by the word "cramming"? Are we not rather floundering in a morass of confusion? Are we not fighting against a mere phrase, which no two persons interpret in the same manner? Archbishop Trench, in his book "On the Study of Words," wrote as follows: "It is a corrupting of the very springs and sources of knowledge, when we bind

up not a truth, but an error, in the very nomenclature which we use. It is the putting of an obstacle in the way, which, however imperceptibly, is yet ever at work, hindering any right apprehension of the thing which has been thus erroneously noted."

Consider the opinions of X, Y, and Z. X holds that the true ideal of education is to teach "everything of something and something of everything." If a boy has a talent for science he should know that subject thoroughly. He should learn enough algebra to be able to do the necessary calculations; enough geometry to enable him to make good diagrams; classics sufficient for a comparison between ancient and modern philosophies; modern languages to such an extent as may be required to keep pace with current inventions; so much history as will show the relation of science to humanity. There is no time for more: anything beyond this is cramming with unnecessary knowledge.

Y, on the other hand, holds the above system to be sheer cramming. Every subject taken should be studied for its own sake. Knowledge that does not penetrate beneath the surface is useless. Hence two or three subjects should be studied, and those taught thoroughly. Merely superficial knowledge is pernicious cramming.

Z, on the contrary, holds that no subject should be taught for its own sake, but simply in order to develop the intellectual powers generally. It matters not whether the facts be remembered provided that the mind has been properly trained. Whether the surface be skimmed or the depths plumbed, let each subject be logically treated. Memorising is cramming.

It is clear that X, Y, and Z are in absolute disagreement, except in condemning a mere phrase.

Others, again, who have no educational theories, understand the word "cramming" to mean studying too hard, or for too many hours a day, or learning by heart without true study, or learning too quickly, or preparing for a special examination, or being unprepared for an examination. There really seems to be no hope for education until we have given up the meaningless command "Thou shalt not cram," or until we have, at any rate, decided what really constitutes "cramming." Far better, in the place of the above negative precept, to substitute some positive principle, such as "Be efficient." Cannot we agree that, whether we touch the fringe of a subject, or penetrate to its very heart, the pupil should, at any rate, be made efficient to that extent? If, therefore, we teach decimals, let the pupil acquire sufficient facility to enable him to add, subtract, multiply, and divide correctly. Do not be content with his having been "properly taught" according to the opinions of various experts.

Put the matter to the test. This cannot be done orally. The work of the world is not carried on by means of the tongue alone; the hand and eye are much more efficacious instruments. Hence

we must have a written test, and we must not be too hard upon mere "slips." Even the best mathematicians at our observatories are said to make about five errors in every hundred calculations.

The test for this purpose must be really a test of the power of using decimals; not a puzzle needing elaborate thought; not an enigma requiring shrewd guesswork; not a technical question involving expert knowledge of some other subject. These latter powers can, and should be, tested by other means. When zero marks are assigned to a question, let it be quite clear whether the penalty is for want of intellectual power, lack of technical knowledge, failure to understand principles, or for sheer inaccuracy.

Assuming that the above describes, however roughly, the nature of the examination which we can generally approve, I propose to inquire in a second article to what extent the questions set in recent Oxford and Cambridge Locals approach or depart from this ideal.

VI.—MODERN LANGUAGES.

By Prof. WALTER RIPPMMAN, M.A.

IN discussing the papers in French and German set at recent Cambridge Local examinations, and the remarks of the examiners on the performance of the candidates, I shall deal but briefly with the *Preliminary* examination, because—in agreement with the report on external examinations recently issued by the Modern Language Association—I believe that such examinations should be abolished. The papers before me are not calculated to change my opinion. They are not in accordance with what seems to me the right kind of instruction in the early stages. The knowledge of grammar is in many cases tested by the translation of English sentences; in the July, 1910, paper (French), three and a half questions of the five on grammar were of this type. There is an English passage for translation into French. The only concessions to the newer methods are a few rare questions such as: "Write in the masculine plural *Une petite fille blanche et rose, douce et craintive*," and French questions to be answered in French which are not too skilfully framed: e.g., *Avez-vous été à Londres? Que faites-vous quand vous avez assez dormi?* There is a striking absence of questions on vocabulary and word-formation.

The grammar questions in the German papers are distinctly better, but here, too, translation from English is required. Those who believe that the use of the mother tongue should be restricted as much as possible in the work of beginners will not be surprised to learn that these candidates, who were forced by the examination to practise translation from English, showed great inaccuracy. They had not had time to acquire that instinctive knowledge of grammar which alone is a safeguard against mistakes.

I do not wish to suggest that inaccuracy is absent from the work of beginners who abstain

from translation. Indeed, too exclusive an insistence on oral work is usually accompanied by gross inaccuracy. The eye and the hand should always be made to collaborate with the ear and the vocal organs in rendering secure the acquisition of new words and new grammatical phenomena.

The *Junior* papers in French also are some distance behind the best teaching. We cannot close our eyes to the fact that examinations react upon schools, and that a teacher cannot afford to ignore in his teaching the type of question by which his pupils' knowledge will be tested. It is, however, the form of the questions rather than the amount of knowledge they require that may be criticised adversely. The examiners complain of carelessness on the part of many candidates, the questions being misread; the only remedy for this kind of thing is an occasional test paper in which such carelessness is severely penalised.

Inaccuracy is also common in the translation from English into French, and in the alternative free composition. The report of the Modern Language Association referred to above excludes the former from Junior examinations; and it makes certain important recommendations for examining in free composition. Merely to set a subject, without any indication of the treatment, is to make the task far too difficult. It may be doubted whether in the short time available a Junior candidate would write a good *English* composition on "Queen Elizabeth," or "Normandy," or even "Robinson Crusoe," to quote some of the subjects set in these French papers.

Our teachers are learning to teach free composition, and when they are not trammelled by examination requirements they achieve success. Examiners in many cases ceased to teach some little time ago, when free composition did not play an important part in the teaching. In some cases I believe they are frankly opposed to it; and this is very unfortunate. Lack of experience leads to neglect of the principle that "at this stage the candidate should be provided with the necessary subject-matter" (M.L.A. report); lack of sympathy leads to low marking.

In examinations like the London Junior, the improvement shown year by year in the free composition demonstrates what can be done by proposing suitable tests. The teachers preparing pupils for this examination have not had to give part of their valuable time to premature translation from English.

The examiners refer repeatedly to translation from French that was mere nonsense, or word-for-word translation, and to ignorance of idiomatic expressions. The remedy is obvious: not that there should be more translation, but that more reading should be done. At this stage it is more profitable to read fifty pages of moderately easy French than to wade slowly through ten pages that contain many new words. When there is translation in class—and as an occasional test it has value, apart from its being necessary in view of examination requirements—it is best done in

writing; for then all the pupils are occupied, and the teacher can give hints to individual pupils, helping them to tackle difficulties. This also affords an opportunity for checking the tendency to thoughtless guessing; another method is to let pupils read a couple of pages, make a list of the words they do not know, and write against each what they think might be the meaning. A little gentle irony in commenting on their conjectures will make them realise that the words of the foreign text must have a meaning.

The Junior papers in German are closely parallel to the French, except that they show still less regard for modern developments. The remarks made above about setting subjects for free composition apply here too. It is unreasonable to expect a candidate of fifteen to "Write a short essay on the Indian Mutiny, or the Boer War, or Describe your favourite pastime," in not more than 100 or fewer than 80 words, which is what the examiners required in 1909. Last year they asked for "A short description of the hedgehog or the mole, or a short essay on clouds."

If they wish to discourage the teaching of free composition, they are setting about it in the right way.

The *Senior* papers in French show much the same features as the Junior. Nothing would be lost if the M.L.A. report were acted upon and the grammar section abolished, the power to apply grammatical knowledge being tested by set composition and free composition. It is difficult for candidates to reach a high standard in both; and the varying interests of teachers would probably be served best by allowing candidates a choice of an easy English passage to be translated and an essay of 250 to 300 words, or a more difficult passage for translation and an easier free composition of 120 to 150 words. Even at this stage it would be well to supply headings for the free composition.

The comments of the examiners on the last Senior examination in French are very unfavourable. They point to insufficient reading on the part of the candidates and to lack of suitable practice in the application of grammatical knowledge.

It is distressing to find that the English also was often unsatisfactory; but this is primarily a matter for the teacher of English. It is true that when pupils have reached the Senior stage, occasional exercises in translation from the foreign language are profitable for testing the grip which they have on the ideas expressed, and still more as an exercise in English vocabulary and style. Slovenly English should never be tolerated by the teachers of any subject in the curriculum.

Even the spelling is reported on as being inaccurate. I sympathise with the candidates, and look forward to their joining the Simplified Spelling Society.

The comments of the Oxford Local examiners generally coincide in spirit and in substance with those of the Cambridge examiners.

I do not know whether the editors of THE SCHOOL WORLD were well advised in giving me

the opportunity to discuss these papers and the examiners' criticisms, for I am obviously opposed to the form of the papers. Preparation for them imposes a check on the adoption of methods which appear to me the most promising and, as experience shows, produce the most satisfactory results. I find it difficult to give useful advice to teachers who prepare for such examinations; and I cannot glean much from the examiners' remarks, which seem to me negative rather than constructive. The case of teachers who are compelled to prepare for the Preliminary examinations is desperate; I can offer them no more than my profound condolence. Those who have to prepare for the Junior and Senior I should advise still to do as much oral work as time will allow, but to associate it always with plentiful written work on blackboard and paper; to increase the amount of easy reading as much as possible; and to urge on the examining bodies, as earnestly and as frequently as they can, the importance of good questions on applied grammar (including vocabulary and word-formation) in the Junior examination, the omission of the grammar section in the Senior examination, and the setting of suitable tests in free composition. I am convinced that nothing is hindering progress in Modern Language teaching more than the discouragement of sound work in free composition which results from requiring premature translation from English and from setting subjects (often unsuitable) for free composition without any indication how they are to be treated. It would be interesting to get from the examiners a specimen essay for which they would award a boy or girl of fifteen full marks; it would probably be evident that the ideal they had in mind was quite beyond the possible attainments of the candidates.

SECONDARY EDUCATION IN LONDON.¹

MAINTAINED SECONDARY SCHOOLS.—The secondary schools in London may be divided into four classes: (i) schools maintained by the Council, (ii) schools aided by the Council, (iii) other public or semi-public schools, (iv) private schools. There were at the beginning of the year 1909-10 nineteen secondary schools maintained by the Council. In January, 1910, the number of maintained secondary schools was twenty. The number of pupils in attendance at the beginning and end of the year was: boys, 912, 1,020; girls, 3,020, 3,243.

The reports of the Board of Education on the maintained schools are practically uniformly satisfactory as regards the work done, almost the only adverse criticisms being in regard to the buildings, and these, for the most part, apply only to cases where schools are being carried on in temporary premises or in buildings originally designed for another purpose. As an indication of the estimation in which the Council's schools are held, it may be mentioned that application has been

made by the Board for permission to send teachers from time to time from other secondary schools to one of the Council's secondary schools to study methods of teaching.

CURRICULUM.—Considerable attention has been paid during the year to the question of the introduction into the Council's secondary schools (especially girls' schools) of courses of instruction intended directly to fit pupils to earn a living in some trade or other occupation. A suggestion was submitted by the advisory committee of one of the Council's secondary schools for girls that definite trade classes should be organised in the school, organised on the same trade lines as the trade schools which have been established in the buildings of some of the polytechnics and technical institutes or as separate institutions. One of the objects of this proposal was to provide some definite career for the junior county scholars who had entered the schools in the first years of the scholarship scheme and were found to be not fitted to take the full ordinary course of a secondary school.

After careful consideration of the whole question, the Higher Education Sub-committee decided not to include trade classes in the curriculum of the county secondary schools. The Sub-committee, while desirous of assisting these particular scholars, was of opinion that the Council's general policy with regard to the curriculum of secondary schools should not be influenced by the fact that in the first years of the scholarship scheme a certain number of girls were selected who were found subsequently to be unsuited for those careers which are usually followed by secondary-school pupils, and would have done better to remain in the elementary schools until the age of fourteen or fifteen.

A somewhat similar question was raised by several advisory sub-committees, namely, the introduction of shorthand and typewriting into the curriculum of the county secondary schools. The Higher Education Sub-committee was unwilling to allow these occupations to be introduced as isolated subjects in the school curriculum, as it thought that the result would merely be to fit more girls to take inferior and badly paid posts in an already overcrowded occupation; it thought, however, that these subjects might with advantage be introduced into the last year of a course of commercial education which was designed with the view of fitting girls to rise to fairly well paid clerical posts. It accordingly resolved that where special commercial courses have been submitted by the headmasters and headmistresses of the county secondary schools and approved by the Higher Education Sub-committee, shorthand and typewriting be allowed in the curriculum of the last year of the course.

No schemes of commercial education for girls had been approved up to the end of the session.

AIDED SECONDARY SCHOOLS.—There were forty-seven secondary schools aided by the Council. The numbers in attendance were, at the beginning of the year, 14,712 (9,244 boys and 5,468 girls).

¹ Extracts from the Annual Report of the London County Council, 1910. Vol. iv., Education. (King.) 25, 6d.

GRANTS.—The following are particulars as to the amounts of grant and other sources of income for the educational years 1907-8, 1908-9, and 1909-10:

possession of information which would enable it to determine whether they should be regarded as forming part of the provision of secondary education in London.

Income (1)	1907-8 (2)	1908-9 (3)	1909-10 (4)
Fees (inclusive of L.C.C. scholars' fees)	109,854	106,447	108,942
Endowments	54,322	51,364	48,191 ¹
Board of Education Grant	42,816	55,119	53,910 ¹
L.C.C. Grant (exclusive of L.C.C. scholars' fees) ...	47,567	41,516	40,347
Total	£254,559	£258,203	£251,390

¹ Governors' estimate.

The fees of Council's scholars amounted to £35,432 in 1907-8, £40,314 in 1908-9, and £43,621 in 1909-10. It will be noticed that the increase in the Board of Education grant which was anticipated in 1910 has been realised. The fact that, notwithstanding the automatic increases in the salaries of the teaching staff, the expenditure from the rates upon grants to aided secondary schools has diminished, is largely the result of the action which the Council has taken in the past few years in urging schools to apply for Government grants and accept the Board's regulations.

OTHER SECONDARY SCHOOLS.—In addition to the two classes of schools referred to above, there are forty-five public or semi-public secondary schools in London which are neither maintained nor aided by the Council. These schools provide for approximately 5,212 boys and 7,265 girls. Of these non-aided schools twenty-seven are inspected by the Board of Education, and the Council receives copies of the reports. Of the remainder some are schools of established reputation, but in regard to others it cannot be said that the Council is in

It will be seen from the figures given above that there are approximately 31,665 pupils (15,498 boys and 16,167 girls) in attendance at public and semi-public secondary schools in London, including eighteen schools which are classed as public or semi-public, because they are not conducted for private profit, but which are not under any form of public inspection.

PRIVATE SCHOOLS.—It is estimated by the Private Schools' Association that some 27,000 children in London are being educated at private schools. As regards the character of the education given at these schools the Council has practically no information, and has apparently no means of acquiring information, since the statutory obligation to "take into account the existing supply of efficient schools and colleges" does not appear to be regarded as being accompanied by the power to take steps to ascertain which schools are efficient.

AGES OF PUPILS.—The following figures with regard to the ages of the pupils in maintained and aided schools are of interest:

AGES OF PUPILS IN SECONDARY SCHOOLS IN LONDON, OCTOBER, 1909.

Percentages.

(The figures in brackets give the information for the preceding year.)

	Under 10.	Between 10 and 11.	Between 11 and 12.	Between 12 and 13.	Between 13 and 14.	Between 14 and 15.	Between 15 and 16.	Between 16 and 17.	Between 17 and 18.	Over 18.
I. Schools Aided by the Council.										
Boys ...	4·7 (5·1)	5·7 (5·2)	12·5 (13·2)	17·2 (16·5)	19·3 (20·3)	19·1 (18·8)	12·9 (11·4)	5·0 (5·8)	2·3 (2·6)	1·0 (1·1)
Girls ..	10·5 (9·0)	4·6 (5·1)	11·7 (13·2)	16·4 (14·7)	15·8 (18·4)	16·9 (17·1)	14·7 (11·1)	6·0 (6·6)	2·8 (3·8)	0·6 (1·1)
II. Schools Maintained by the Council.										
Boys ...	4·9 (3·1)	5·9 (5·1)	14·9 (10·5)	16·8 (17·8)	19·5 (17·1)	14·8 (15·0)	11·3 (13·5)	6·7 (10·2)	4·3 (5·0)	0·76 (2·7)
Girls ..	1·9 (1·1)	1·9 (1·6)	11·9 (6·0)	15·2 (16·7)	20·0 (19·2)	16·8 (16·9)	14·0 (12·4)	7·8 (8·4)	7·0 (9·9)	3·3 (7·7)
III. Aided and Maintained Schools combined.										
Boys ...	4·8 (4·9)	5·7 (5·2)	12·7 (13·)	17·1 (16·6)	19·3 (20·0)	18·6 (18·5)	12·7 (11·6)	5·2 (6·1)	2·6 (2·8)	0·96 (1·1)
Girls ...	7·1 (6·5)	3·6 (4·0)	11·7 (10·9)	15·9 (15·3)	17·4 (18·6)	16·8 (17·0)	14·4 (11·4)	6·6 (7·2)	4·4 (5·7)	1·6 (3·1)

SCHOLARSHIPS.—The revised scheme for the Council's scholarships was formally approved by the Council on October 12th, 1909, and came into operation as from the beginning of the educational years 1909-10. Full particulars of the principal changes introduced, and of the considerations which influenced the Council in adopting them, were given in last year's report. It is therefore sufficient to state here that the principal changes were as follows:

(i) Reduction in the number of junior county scholarships awarded to girls to approximate equality with the number awarded to boys.

(ii) Abolition of the probationer scholarships, which were formerly awarded at the age of about fourteen to boys and girls intending to become teachers, and the substitution of "supplementary junior scholarships" intended to assist by maintenance grants boys and girls who have been awarded free places by the governors of secondary schools.

(iii) Increase in the number of intermediate county scholarships to be awarded annually from 100 to a maximum of 300.

(iv) The abolition of the evening art scholarships carrying high maintenance grants, and the substitution of day scholarships intended to enable young artisans to give up their work for a time in order to devote their whole time to study some branch of art or science bearing on their occupation.

ON THE TEACHING OF READING.

By H. BOMPAS SMITH, M.A.

Headmaster of King Edward VII. School, Lytham.

II.

IN the last article¹ we saw that the process of reading may be analysed into three stages, viz., the recognition of the words by their shape, the transition from this visual recognition to the mental reproduction of the sound borne by the words when spoken, and thirdly, the assimilation of the meaning which the words convey. The first two stages have been already dealt with, and we now come to the third and final stage, which is the most important of the three, for our only object in reading is to understand what we read. Hence in teaching boys to read we must keep the importance of this third stage constantly in mind, and reject all methods which treat reading as a formal exercise rather than as a process of arriving at a meaning. The test of our teaching will be our success in helping the boys to assimilate the thoughts and feelings of which the words before them are the symbols.

Our efforts to give this help may be rendered more effective if we briefly consider the nature of the meaning which we wish them to understand. Of meaning in general we may say that an object of perception or thought has a meaning for us when we feel that it has a value for our mental life. For example, if a boy comes across a book lying on the ground and takes no notice of it, the

book has no meaning for him. If, on the other hand, he sees that it is the book he is reading and wants to finish, the book acquires a meaning. Perhaps he stoops down and picks it up, or he feels annoyed that it was on the floor. Or, again, suppose that a preacher is expounding the doctrine of predestination. Some of his hearers may be quite inattentive, not even explicitly aware that they are listening to a sermon. For them the preacher's argument has no meaning. Others may be vaguely aware that the preacher is explaining something. For them the argument has a meaning in so far as they are conscious that it is being expounded, and that they could therefore listen if they liked. This meaning is, however, quite an indefinite one. A third class of auditors may be trying in vain to follow the preacher's line of thought. For them his argument has a fuller meaning. They feel that it has a possible value for them, and they endeavour to grasp the sense which they know is there. Lastly, there are the listeners who can appreciate the preacher's thoughts. In their case the meaning is a much more definite one. It is connected in their minds with their own thoughts and feelings. They feel a pleasurable or painful interest in it, and their comprehension of it involves some change, however small, in their thoughts and purposes.

If then we define the meaning of an object as the value which that object has for our thoughts, feelings, and desires, three conclusions can be drawn that are of practical importance.

First, in the examples given the book had a meaning for the boy only in so far as the boy attended to it or had an interest in it, and the same thing was true of the meaning of the sermon for those who listened to it. These instances point to a principle which, without discussing difficult cases, we may assume to be of general application, namely, that things have a meaning for us in virtue of our attending to them or taking an interest in them. But this principle has an important bearing upon our teaching methods. For it follows that unless a boy is interested in what he reads it will have no meaning for him, and he will therefore not read it in the true sense at all. So far as that passage is concerned our lesson will have been a failure. Hence it is wrong to concentrate attention upon the process of reading instead of upon the matter read. You may, for instance, give a list of difficult words for the form to read quite irrespective of their meaning, and the boys may be keen upon reading the words right. But the value of such an exercise will be small. It may give some practice in the mechanical part of reading, but it will tend to divert attention from the proper object, the comprehension of what is read. A good deal of the elementary teaching of reading is unfortunately of this character, and sometimes teaching that is more advanced suffers from the same defect. There is always a temptation to make boys read for the sake of practice without much regard to the meaning of the passage. But, with certain qualifications, the principle may be laid down that a boy should

¹ See THE SCHOOL WORLD, December, 1911.

never be made to read anything unless he is sufficiently interested in the meaning to wish to discover what it is. It may further be asserted that the more interesting the subject-matter, the better the lesson in reading, provided always that no slurring over the mechanical part of the process is allowed, and that the interest is of the appropriate kind. On this last point something will be said below.

When, however, we emphasise the importance of interest in the subject-matter we must include under this head two subordinate types of interest which might at first sight appear distinct. A boy may very rightly be interested in reading well irrespective of the particular subject with which his reading deals. It is clearly one of the purposes of the reading lesson to develop such an interest. But, after all, this desire to read well ought to take the form of a wish to give an adequate expression to the meaning of the passage, and is therefore one kind of interest in that meaning. The boy should not aim at reading in such a way as to direct attention to the excellence of his performance, but rather so as to make his hearers fully realise the force of what he reads. We are told that when Cicero spoke his hearers praised his eloquence, but Demosthenes' speeches made the people forget the orator and cry aloud for war. This distinction, whether historically true or not, illustrates the difference between reading for effect and reading for the sake of the meaning. Our aim must be, not to make our boys what is sometimes called "good readers," but to make them forget themselves and think only of the meaning. This shows the futility of the type of teaching in which stress is laid upon artificial emphasis or expression. Few errors are more fatal than for a master to cultivate an unnatural style of reading either in himself or in his boys. Unless expression is the almost unconscious result of the reader's own appreciation of the meaning, it is worse than useless; and further, there is an interest in arriving at the meaning, the kind of interest we feel when we want to solve a problem. It is the interest of achievement apart from any ulterior consequences. It is strongly felt by boys who are industrious; not at all, or very little, by those who are idle. Like other interests it grows by practice, that is, by a boy's habitual looking for the meaning. It is of the utmost importance that boys should acquire this habit and feel dissatisfied with a sentence until they know what its meaning is.

We pass now to the second of the conclusions to be drawn from the definition of meaning given above. If meaning is equivalent to value for our mental life, it follows that there are as many different kinds of meanings as there are different types of mental values or interests. Thus, a sentence may have meaning for us because it adds to our knowledge, or because the comprehension of the sentence excites some emotion, or because it aids us in carrying out some purpose. For instance, the statement that the three angles of a triangle are equal to two right angles

may have three different types of meaning for a boy. It may gratify his desire to know more geometry; or the fact itself may give him a kind of æsthetic pleasure; or he may value the knowledge as of possible utility to him in his future calling, or perhaps as a means of gaining marks. A poem may have similar meanings, but their relative importance will be different. As a rule, when we completely realise the meaning of a sentence, all three types of interest are aroused, and our teaching will be very imperfect if we are satisfied with an appeal to only one of them, although in most cases one will be more important than the others. Thus, speaking generally, in scientific reading the intellectual interest will be the dominant one, in literature the appeal to the emotions, and so on.

It would take too long to discuss the various ways in which we can help boys to arrive at the various meanings of a sentence, but the following suggestions may be made. The intellectual meaning is clearly the foundation of the other two, and we can make this meaning clearer either by direct explanation or by asking suitable questions, and so leading the boys to build up the meaning for themselves. Of these methods the latter is obviously to be preferred when time and circumstances permit, but it would be pedantic to exclude the former altogether. Only, our explanations should be kept within narrow limits. They should serve simply to open a window through which the boy may see the meaning. It is better to give too little explanation rather than too much, though attention may be directed to points which might otherwise be overlooked. In the case of young boys the mental images called up by the sentence may have to be made definite. This type of meaning may be brought out and the boys' comprehension of it tested by paraphrasing, or by leading them to draw deductions from the passage, or, not least, by making them read it aloud. To summarise a paragraph is also an excellent exercise. Again, a boy's emotional appreciation of a passage will be stimulated chiefly by the indefinable and almost unconscious signs of our own appreciation of it, but any undue intrusion of our own feelings is almost certain to be fatal. It will either rouse antagonism in the boys, or, what is worse, will stimulate an artificial sentimentality not justified by their own experience. The boys' emotional appreciation must, above all things, be sincere. Some degree of literary appreciation can be developed in most boys by an appropriate course of reading, and many of us have been surprised at the good literary taste displayed by the majority of boys. Most boys seem to have an instinctive preference for really good poetry or prose compared with what is second-rate. It is to be feared that this instinct is in most cases lost by the time they have grown up, and if this is so, it reflects little credit on their school. But further, boys learn to realise the practical meaning of what they read when the knowledge of the passage is habitually put to some use. It may form the basis for

further work, or interesting conclusions may be drawn, or its bearing upon other interests may be made clear.

The last conclusion to be drawn from the nature of meaning depends upon the distinction between two different senses in which a passage may be said to have a meaning. In the first place, a passage has a particular meaning for the person who happens to be reading it. This meaning depends upon the reader's interest and his individual powers of appreciation. If a boy is cursorily reading one of Shakespeare's plays the play will have a meaning for him, even though this meaning may be a very limited one. But secondly, there is a universal meaning which the passage has for those who can understand it fully, and which we may regard as being independent of the reader's individual limitations. It is this universal meaning which we try to apprehend when we read intelligently. Our aim is to make the individual meaning of the passage identical with its universal meaning. If there were no universal meanings it would be impossible for us to communicate our thoughts to one another, for we should have no common ground on which to meet. But a sentence has a universal meaning

because the thought expressed in it forms part of a system of knowledge, emotions, and purposes which is recognised as valid by us all in much the same way as we recognise the truth of science or mathematics. This system of thoughts and feelings is the expression of the spiritual life of the community, and has been gradually evolved in the course of its history. It has been built up by the work of men and women who have thought and felt and purposed more truly and deeply than those around them, and it is slowly approximating to the system of absolute truth which we assume to be the goal of all our efforts. If a boy reads anything worth reading, and understands it, he to some extent makes his own the fragment of universal meaning embodied in the passage. Thus even from books like Henty's stories a boy may learn to realise more fully the meaning of some act of courage or of loyalty to a friend. It follows that when we teach a boy to read, our ultimate object is to place in his hands a key which will unlock the storehouse of knowledge and emotion garnered through the ages. Our task is not to give him mechanical facility or mere technique, but rather to enable him to gain some foothold in the world of absolute reality.

TEACHERS' REFERENCE LIBRARIES.

THE London County Council provides in the senior departments of the public elementary schools under its jurisdiction a number of works of reference for the use of the teachers in these departments. There is a similar need for

these and other books of reference in secondary schools, and headmasters and headmistresses will find the following list, compiled by the Books and Apparatus Sub-committee of the Education Committee of the London County Council, useful in making their own selections :

			s.	d.
Atlas of Commercial Geography	J. G. Bartholomew	(Cambridge University Press)	3	0
Biographical Dictionary	Ed. D. Patrick and F. H. Groome	(Chambers)	10	6
Board of Education Mathematical Tables ...	—	...	0	1
Cabinet Cyclopædia	—	(Cassell)	7	6
Collegiate Dictionary, The	N. Webster	(Bell)	net	12 0
Concise Dictionary of the English Language	W. W. Skeat... ..	(Clarendon Press)	5	6
Concise Gazetteer of the World	Ed. D. Patrick	(Chambers)	net	6 0
Concordance to the Holy Scriptures	A. Cruden	(Religious Tract Society)	3	6
Dictionary of English History	Low and Pulling	(Cassell)	9	0
Dictionary of Musical Terms	Stainer and Barratt	(Novello)	7	6
Elementary Latin Dictionary	C. T. Lewis	(Clarendon Press)	7	6
Handy Royal Atlas	Keith-Johnston	(W. and A. K. Johnston)	15	0
How to Find and Name Wild Flowers	Fox	(Cassell)	2	0
Literary and Historical Atlas of Europe	J. G. Bartholomew	(Dent)	net	1 0
London (Historic Town Series)	W. J. Loftie	(Longmans)	3	6
Maps of Old London	—	(Black)	5	0
New French Dictionary, A	F. E. A. Gasc... ..	(Pitman)	12	6
Practical German Dictionary	Brackley and Friedlander	(Longmans)	3	6
School Atlas of English History	S. R. Gardiner	(Longmans)	5	0
School History of English Literature	G. Saintsbury	(Macmillan)	8	6
Smaller Bible Dictionary	W. Smith	(Murray)	7	6
Smaller Classical Dictionary	W. Smith	(Dent)	net	1 0
Student's History of England... ..	S. R. Gardiner	(Longmans)	12	0

SALARIES IN ENGLISH SECONDARY SCHOOLS.

THE Board of Education has issued a White Paper [Cd. 5,951], containing statistics relating to the income and expenditure, especially in relation to the salaries of the teaching staff, in certain secondary schools in England.

The paper consists of eight tables; the first four deal with the receipts and payments of 193 schools, about one-quarter of the schools on the grant list;

85 are schools for boys, 52 for girls, and 56 for boys and girls. In the analysis the schools are classified also according to size, and again according to administration. The cost of maintenance per head varies from £8 18s. to £31 10s., and the cost of salaries per head from £7 4s. to £21 7s. In the column "Heads under which, from the accounts, expenditure appears to be unusually heavy," "Premises" appears against 24 out of 85 schools for boys—that is, in 28 per

SALARIES OF HEAD- AND ASSISTANT-MASTERS AND -MISTRESSES IN GRANT-AIDED SECONDARY SCHOOLS ON JANUARY 31, 1911.

Salary per Annum	Headmasters		Assistant-masters		Headmistresses		Assistant-mistresses	
	Number	Per Cent.	Number	Per Cent.	Number	Per Cent.	Number	Per Cent.
Under £60... ..	—	—	10	0·2	—	—	—	—
£60 and under £80	—	—	33	0·8	—	—	34	0·9
£80 „ „ £100	—	—	77	1·9	—	—	88	2·3
£100 „ „ £120	—	—	234	5·9	—	—	277	7·3
£120 „ „ £140	—	—	513	12·8	—	—	1,169	30·8
£140 „ „ £160	—	—	847	21·2	1	0·4	1,308	34·4
							535	14·1
£160 „ „ £180	2	0·4	795	19·9	2	0·8	244	6·4
£180 „ „ £200	3	0·6	562	14·0	8	3·1	79	2·1
£200 „ „ £220	3	0·6	456	11·4	26	10·0	41	1·1
£220 „ „ £240	8	1·5	186	4·6	12	4·6	20	0·5
£240 „ „ £260	30	5·5	143	3·6	33	12·7	3	0·1
£260 „ „ £280	31	5·7	48	1·2	19	7·3	—	—
£280 „ „ £300	23	4·2	28	0·7	17	6·5	1	0·0
£300 „ „ £350	91	16·8	51	1·3	50	19·2	—	—
£350 „ „ £400	81	14·9	15	0·4	35	13·5	—	—
£400 „ „ £450	77	14·1	3	0·1	23	8·8	—	—
£450 „ „ £500	52	9·6	—	—	4	1·5	—	—
£500 „ „ £600	57	10·5	1	0·0	20	7·7	—	—
£600 „ „ £700	35	6·5	—	—	6	2·3	—	—
£700 „ „ £800	22	4·1	—	—	2	0·8	—	—
£800 „ „ £900	14	2·6	—	—	1	0·4	—	—
£900 „ „ £1,000	2	0·4	—	—	—	—	—	—
£1,000 and over	11	2·0	—	—	1	0·4	—	—
Total	542	100·0	4,002	100·0	260	100·0	3,799	100·0
Average Salary	£438		£168		£332		£123	

cent. of these schools premises are "exceptionally costly"; 27 per cent. of the girls' schools suffer in the same way, but only about 9 per cent. of those for both boys and girls.

The remaining four tables relate to the salaries of the masters and mistresses in all the schools on the grant list. One of these, Table V., is of such interest that it is reproduced above; from it will be seen that eight out of every ten assistant-masters are receiving between £120 and £220 a year, while eight out of every ten assistant-mistresses are receiving between £100 and £160 a year. The average of the salaries of assistant-masters, £168, is still far too low, but it compares favourably with the figures given before the Royal Commission in 1895; they were then £58 16s. for resident, and £134 4s. for non-resident masters. The schools are also classified according to the highest salary paid to any member of the assistant staff: in 36 out of 813 schools the highest salary paid is above £300, and in only 12, or 3·5 per cent., is it above £350.

The last two tables show the number of teachers, heads and assistants, men and women, of each age from 20 to 70, and the salary they receive. When the figures for each year are given, the salaries are seen to rise up to the age of about 30, when they become somewhat irregular, though all the averages over £200 are for men of over 45 or women of 63-4 years of age; this is excluding heads. When the ages are grouped in periods of

five years, the salaries of assistants rise as the age increases up to "70 and over," when there is a decrease. This increase of salaries with age is not observable in the salaries of the headmasters. One of 28-9 receives £544, while the average salary of three of 30-1 is £444, and of three of 31-2 £295. There are two headmasters of over 70 whose salaries together amount to £2,525, and two assistants of the same age whose salaries amount to £325! There is one assistant-mistress of "70 and over" whose salary is £70. Such are a few of the interesting facts in the Board's latest issue—an issue that it is hoped is the basis and the beginning of a periodic return of these important statistics.

PERSONAL PARAGRAPHS.

THE President of the Board of Education has appointed Mr. L. A. Selby-Bigge, C.B., to be Permanent Secretary of the Board when that post is vacated by Sir Robert Morant, K.C.B. Mr. Selby-Bigge was educated at Winchester, in college, and at Christ Church, and became a fellow of University College, Oxford, and lecturer in philosophy in 1883. He was called to the Bar by the Inner Temple in 1891. He joined the staff of the Board of Education in 1902, and was appointed an assistant secretary in January, 1904. Since January, 1908, he has been

principal assistant secretary of the elementary branch of the Board of Education.

* * *

LORD LOREBURN, who was educated at Cheltenham, has been elected President of the Council of Cheltenham College, in place of the late Lord James of Hereford.

* * *

To the professorship of chemistry at University College, Reading, has been elected Dr. Henry Bassett, of the University of Liverpool.

* * *

DR. J. K. H. INGLIS, who resigned the Reading professorship, has been appointed to the professorship of chemistry at the Otago University at Dunedin, New Zealand.

* * *

MANCHESTER intends to confer its Litt.D. on a quartet of historians, Profs. C. H. Firth, Richard Lodge and A. F. Pollard, and Mr. J. E. Morris, treasurer of the Historical Association.

* * *

MEANWHILE the Manchester professor of mediæval and modern history, Mr. Thos. F. Tout, formerly fellow of Pembroke College, Oxford, has been appointed Ford's lecturer in English history at Oxford for 1912-13.

* * *

THERE died recently in Dublin Mr. William Graham, late professor of political economy and jurisprudence at Queen's College, Belfast. Educated at Trinity College, Dublin, he was called to the Bar by the Inner Temple in 1892. Dublin conferred on him its LL.D. in 1905. A work of his that attracted a great deal of attention was "The Creed of Science" (1881). He had resigned his chair at Belfast in 1909.

* * *

DR. GEORGE ROBERT PARKIN, who is organising representative of the Rhodes Scholarship Trust, and whom it has been my pleasure to meet at Brasenose College, had recently conferred upon him the degree of D.C.L., *honoris causa*, and had a great reception from a large number of Rhodes scholars.

* * *

AT Durham a new president of Armstrong College has been elected in the person of Lord Grey. He succeeds the late Right Hon. Robert Spence Watson.

* * *

To the teaching staff of the college have been elected Mr. Sydney Maughan (Cambridge), Mr. Thomas Bentham (Oxford), and Miss E. L. Melville (Leeds Training College): the first as lecturer in botany, the second as demonstrator in zoology, the third as lecturer in method and education.

* * *

DR. JOHN HOLLAND ROSE, of Christ's College, Cambridge, whose brilliant volumes on Pitt have recently been published, has been appointed reader

in modern history in the university. He is also to deliver a course of lectures in America this year.

* * *

DR. W. R. BOYCE GIBSON, lecturer in philosophy at the University of Liverpool, has been appointed to the chair of mental and moral philosophy in the University of Melbourne. Born in 1869, he was educated at Kingswood School, Bath, and Queen's College, Oxford, and studied also at the Universities of Jena, Paris, and Glasgow. He has published several works on philosophy.

* * *

MOST of the classical scholars of my generation will remember frequent references to the works of Vahlen, the professor of classical subjects at Berlin University, who recently died at the age of eighty-one. He wrote on classical literature and philosophy, and edited many of the Latin poets.

* * *

RECENTLY the death was announced of the Rev. John Langhorne, vicar of Lamberhurst, who was for some sixteen years headmaster of the King's School, Rochester. He was a scholar of Christ's College, Cambridge, and was bracketed 14th Classic in 1859, the year when Henry Sidgwick was Senior Classic. In 1860 he became an assistant-master at Tonbridge School, and was appointed headmaster of the King's School, Rochester, in 1877. In 1893 the Dean and Chapter appointed him to the rectory of Lamberhurst.

* * *

THE late Canon Samuel Chorlton had been vicar of Pitsmoor, Sheffield, since 1872. Graduating at Trinity College, Dublin, in 1861, he went to Sheffield as second master at the Royal Grammar School in 1862. He was made Canon and Prebendary of York in 1905.

* * *

IN the place of Dr. R. D. Roberts, whose death I recorded last month, Dr. Alexander Hill has been appointed secretary to the Imperial University Congress. He was formerly Master of Downing College, Cambridge, and was, in 1901 and 1906, one of the Commissioners appointed by the Treasury for the inspection of universities and university colleges in receipt of Government grants.

* * *

MR. C. H. WYATT has been appointed to the new office of sole director of education by the Manchester Education Committee. He will discharge the whole of the administrative duties hitherto discharged by the directors of elementary and higher education, as from April 1st next.

* * *

LAST month we dwelt on the services to Manchester of Mr. J. H. Reynolds. Recently a dinner was held in Manchester in honour of Mr. John Angell, who has been connected with Manchester's social and educational life for sixty years, chiefly as a pioneer of science teaching.

Among positions he has held in Manchester are the headmastership of the day school in connection with the old Mechanics' Institution and a physics mastership at the Manchester Grammar School.

* * *

THE REV. GEORGE FOX, vicar of Stroud, Gloucestershire, and honorary canon of Gloucester Cathedral, who died recently at the age of sixty-nine, had been directly connected with education for some years. He took his B.A. (Lond.) in 1871, and LL.B. in 1878. When he was ordained deacon (in the diocese of Salisbury) in 1872, he was second master of St. Andrew's College, Chardstock; and when he took priest's orders in 1878, he was sub-warden of Salisbury College. He was successively rector of Oldbury-on-Severn, vicar of St. Luke, Gloucester, and vicar of Stroud, and had been honorary canon of Gloucester since 1898.

* * *

PROF. JAMES GEIKIE has been presented with his portrait (and a replica for Mrs. Geikie) by the members of the Royal Scottish Geographical Society, in recognition of his services to the society and of his eminence as a scientific leader.

THE MOST NOTABLE SCHOOL BOOKS OF 1911.

THE short lists of recent school books which it has been customary to publish in the first number of each new volume of THE SCHOOL WORLD have been useful to teachers in assisting them to become acquainted with the best available text-books in the subjects they teach. We are glad to be able to provide new lists this year. The compilation of the lists of books published during 1911, or too late in 1910 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.

Pellissier, "Anthologie des Poètes du XIX^e Siècle (1800-66)." (Paris: Delagrave.) 3s.

Pellissier, "Anthologie des Prosateurs français contemporains (1850 à nos jours)." Tome I, "Les Romanciers." (Paris: Delagrave.) 3s.

Convenient selections of modern verse and prose fiction.

Brunot et Bony, "Méthode de Langue Française." (Paris: Colin.) Three volumes. 6d., 9d., 1s. 4d.

Written for use in French schools, but offering many helpful hints to English teachers of French.

Ping, Lilian G., "Tableaux Vivants." (Dent.) 1s. 4d.

Animated scenes by which the vocabulary is extended in a systematic way.

Hart, M., and Hardress O'Grady, "Steps to the Writing of French Free Composition." (Blackie.) 9d.

The teaching of free composition calls for much care and skill; this little book is a step in the right direction.

Dawbarn, C., "France and the French." (Methuen) 10s. 6d.

A book of much interest to teachers.

"Das Oxforder Buch Deutscher Dichtung." Von Prof. H. G. Fiedler. (Oxford University Press.) 6s.

A scholarly anthology, in most attractive form.

Könnecke, "Deutscher Litteraturatlas." (Marburg: Elwert.) 6s.

This cheap edition of the admirable collection of portraits, facsimiles, &c., should be accessible to every pupil in an advanced German class.

Hirsch, L., and J. S. Walters, "Aus dem Leben." (Dent.) 1s. 4d.

Scenes of familiar life, in simple but idiomatic German.

Eberhardt, "Synonymisches Handwörterbuch der deutschen Sprache." With English, French, Italian, and Russian renderings. (Leipzig: Grieben.) 12s.

Should find a place in the German teacher's library.

Klinghardt and Fourmesttraux, "Französische Intonationsübungen." (Cöthen: Schulze.) 4s.

An excellent piece of work, that will help the teacher to realise and to impart the chief features of French intonation.

Classics.

The year has been singularly poor in classical school books that have any claim to attention. The most useful is an excellent collection of old Latin fragments:

"Poetarum Romanarum Veterum Reliquiae." Selegit E. Diehl. (Bonn: Marcus u. Weber.) 2.50 marks.

This book is valuable for illustrations of Lucretius and Virgil.

Terence: "Phormio." Simplified by H. R. Fairclough and L. J. Richardson. (New York: Sanborn.) 2s. 6d.

It is put into prose, and has good stage directions.

Clari Romani: "Aemilius Paullus." By F. R. Dale. (Murray.) 1s. 6d.

Plato's "Phaedo." By John Burnet. (Clarendon Press.) 5s.

The best edition of the "Phaedo," unpretending as it is.

For more advanced students we have:

Aristotle's "Poetics." By D. S. Margoliouth. (Hodder and Stoughton.) 10s. 6d. net.

A remarkably original book, using the Arabic commentaries.

Aristophanes' "Clouds." By W. J. M. Starkie. (Macmillan.) 12s. net.

With Shakespearean translation, and notes.

"The Lady of Dolon." By A. Shewan. (Macmillan.) 10s. net.

A reasoned defence of "Iliad" X., with a demonstration of the contradictory nature of criticisms on it.

"Thucydides and the History of his Age." By G. B. Grundy. (Murray.) 16s. net.

A defence of the accuracy of Thucydides; it carries too far the modern prepossession that wars are all due to economic causes, but it contains much important matter.

"The Greek Commonwealth." By A. E. Zimmern. (Clarendon Press.) 8s. 6d. net.

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

"Companion to Latin Studies." By J. E. Sandys. (Cambridge University Press.) 18s. net.

Like the Greek companion: a useful compendium, but uneven. Very heavy to hold.

"Religious Experience of the Roman People." By W. Warde Fowler. (Macmillan.) 12s. net.

A brilliant book; the best yet written on Roman religion.

English Language, Grammar, and Composition.

"Webster's New International Dictionary." (Bell.) £2 13s. 6d., and other prices.

Trustworthy and scholarly: essential for the school library.

"The Concise Oxford Dictionary of Current English." By H. W. and F. G. Fowler. (Clarendon Press.) 3s. 6d. net.

A masterly adaptation from the Oxford Dictionary: an excellent guide to present-day English.

"English Dialects from the Eighth Century to the Present Day." By W. W. Skeat. (Cambridge University Press.) 1s. net.

Attractively written, scientific, and authoritative.

"Historical Manual of English Prosody." By G. Saintsbury. (Macmillan.) 5s. net.

A very interesting and eminently sane volume.

"The Elementary Course in English." By J. F. Hosie. (Cambridge University Press.) 3s. net.

A full account of American school work in English. Valuable for teachers.

"A Study of Words." By E. M. Blackburn. (Longmans.) 3s. 6d.

A suggestive and stimulating study in vocabulary, starting from derivation.

"Arnold's Shilling English Composition." By E. J. Kenny. (E. Arnold.) 1s.

A compact, well-arranged book, which should prove very useful.

"English Sounds: a Book for English Boys and Girls." By Walter Rippmann. (Dent.) 1s.

A timely and important work: thoroughly practical.

"Exercises in Précis Writing." By J. H. Vince. (Dent.) 1s. 6d.

"Précis Writing." By E. A. Belcher. (E. Arnold.) 2s. 6d.

Both will be found of great service for Army candidates.

"On the Terminology of Grammar." (Murray.) 6d. net.

The revised report of the Joint Committee on Grammatical Terminology.

"Easy Parsing and Analysis." By J. C. Nesfield. (Macmillan.) 1s.

Well adapted for juniors.

History.**BRITISH HISTORY.***Text-books.*

"Great Britain and Ireland." By J. E. Morris. (Cambridge University Press.) 3s.

Modern views on several matters.

"A Junior History of Great Britain." By E. M. Wilmot-Buxton. (Methuen.) 2s.

Choice quotations at the end of most chapters.

"English History Illustrated from Original Sources, to 1066." By S. Melhuish. (Black.) 2s. 6d.

A source book.

"A History of England for Schools." By M. W. Keatinge and N. L. Frazer. (Black.) 2s. 6d. each of two parts.

Mainly sources, with a good sketch of the history.

"The British Empire and its History." By E. G. Hawke. (Murray.) 3s. 6d.

"The Story of Nelson." By H. F. B. Wheeler. (Harrap.) 3s. 6d.

For the School Library.

"Sea Kings of Britain, Keppel to Nelson." By G. A. R. Callender. (Longmans.) 3s. 6d.

The third volume of an interesting work.

"The Great Fight for Canada." (Frowde.) 1s. Extracts from standard histories.

"Lyra Historica." By M. E. Windsor and J. Tural. (Clarendon Press.) 2s.

Poems on British history.

"English History in English Poetry." By C. H. Frith. (Horace Marshall.) 2s. 6d.

GENERAL HISTORY.*For Teachers.*

"The Cambridge Mediæval History." Vol. i. (Cambridge University Press.) 20s.

The first of eight volumes.

"Mediæval Europe, 1095-1254." By K. Bell. (Clarendon Press.) 4s. 6d.

"The New Europe, 1789-1889." By R. W. Jeffery. (Constable.) 8s. 6d.

Specially useful for tables of causations.

For the School Library.

"Scenes from European History." By J. B. Smith. (E. Arnold.) 2s. 6d.

Mainly biographical.

"Highroads of General History." By E. M. Wilmot-Buxton. (Nelson.) 2s.

Accounts of early Eastern Powers, &c.

"Famous Sea Fights." By J. R. Hale. (Methuen.) 6s. From Salamis to Tsushima.

"Phillips' New Historical Atlas." By R. Muir. (Philip.) 9s.

MISCELLANEOUS.

"A Short History of Europe, 476-1453." By C. S. Terry. (Routledge.) 3s. 6d.

A good text-book.

"Local History and Antiquities." By J. C. Morris and H. Jordan. (Routledge.) 4s. 6d.

Much information on out-of-the-way matters.

Geography.*General.*

"Modern Geography." By M. I. Newbigin. (Williams and Norgate.) 1s.

A judicious survey of the scope of geography (Home University Library).

"Physical Geography for Schools." By B. Smith. (A. and C. Black.) 3s. 6d.

A compilation on familiar lines, but specially commended for its British illustrations.

"Physical Geography." By E. W. Heaton. (Ralph, Holland.) 1s. 3d.

Stiffish perhaps for the pupil (Junior Scientific Geography, Bk. I.), but full of material for the teacher.

"Nations of the Modern World." By H. J. Mackinder. (Philip.) 2s.

A real correlation of history and geography, and the last volume of the author's "Elementary Studies."

"Teacher's Handbook and Key to the Progressive Course." By P. L'Estrange. (Philip.) 5s.

Notes on method and answers, with an introduction on teaching geography.

Special.

British Isles. "Commercial Geography." By A. J. Herbertson. (Chambers.) 1s.

A third edition with much revision.

British Isles. "Geography." By J. F. Unstead and E. G. R. Taylor. (Philip.) 1s. 6d.

"Ireland." By O. J. R. Howarth. (Clarendon Press.) 2s. 6d.

"Scotland, Ireland, and Britain Over Seas." By A. J. Berry. (Blackie.) 1s. 6d.

Book IV. of "Lands and their Stories"—an attempt to correlate history and geography.

"Cambridge County Geographies." "Berkshire," by H. W. Monckton; "Huntingdonshire," by Rev. W. Noble; "Worcestershire," by L. J. Wills; "Ayrshire," by J. Foster; "Aberdeenshire," by A. Mackie; "Fifeshire," by E. S. Valentine. (Cambridge University Press.) 1s. 6d. each.

Books of varied merit, but all interesting and well illustrated.

"County Coast Series." "Kent," by A. D. Lewis; "S. Wales," by E. Rhys. (Unwin.) 6s. each.

History and geography again: good reading.

"The Reigate Sheet of the One-inch Ordnance Survey." By Ellen Smith. (Black.) 3s. 6d.

A good beginning to Dr. Mill's scheme of a Regional Description of the British Isles.

"Eight Lectures on India." By H. J. Mackinder. (Philip.) 1s.

Prepared, along with a large number of lantern-slides, for the Visual Instruction Committee of the Colonial Office.

"Europe and the Mediterranean Region." By J. B. Reynolds. (Black.) 1s. 6d.

A simple study of a complex subject.

"Europe and its Peoples." By H. W. Palmer. (Blackie.) 1s. 8d.

Book V. of "Lands and their Stories": scrappy, but interesting.

"North America." By J. F. and A. H. Chamberlain. (Macmillan.) 3s.

One of the series "Continents and their People."

"Africa: The Opening Up." By Sir H. H. Johnston. (Williams and Norgate.) 1s.

A condensation of African history and geography from prehistoric times to 1911 (Home University Library).

"Historical Geography of British Colonies." "Canada," "Newfoundland," by J. D. Rogers. (Clarendon Press.) 4s. 6d. each.

Both excellent books: "Canada" is the geographical part only (part iii. of vol. v.).

"Military Sketching, Map Reading and Reconnaissance." By A. F. Mockler-Ferryman. (Stanford.) 5s.

The best book on this subject for its size and price: originally published in 1903.

Atlases.

"Home Work Atlas." By Prof. L. W. Lyde. (Black.) 1s.

Eight maps in black and white of each continent—chiefly physical.

"Visual Series of Improved Contour Outline Maps." By Douglas and Philip. (Philip.) $\frac{1}{2}$ d. each.

Coast-line, three contours, no rivers.

"Historical Atlas of India." By C. Joppen. (Longmans.) 5s.

A second edition of twenty-eight maps: from the times of Alexander the Great to the twentieth century.

Wall Maps, &c.

"Bathy-ographical Series." "The World," "Europe," "England." (W. and A. K. Johnston.) 12s. each.

Adapted for teaching cause and effect.

"Geographical Pictures." "British Isles." Edited by P. L'Estrange. (Philip.) 21s.

Twenty large pictures, each 24×20 inches, in box; illustrating historical, commercial, and scenic geography.

Mathematics.

"Macmillan's Reform Arithmetic." By P. Wilkinson and F. W. Cook. (Macmillan.) Books I., II., III., IV., 3d. each; Books V., VI., 4d. each; Teacher's Books I., II., III., IV., 9d. each; V. and VI., 1s. each.

"The Rational Arithmetic." By G. Ricks. (Macmillan.) Books I.-VII. Teacher's Books, 8d. each; Scholar's, 3d. each; Girls' Edition, Books I.-V., 3d. each; VI.-VII. in one, 5d.

"Handwork and Practical Arithmetic." By G. F. Johnson. (Pitman.) Books I. and II.

"Applied Arithmetic." A New Course of Practical Number Work correlated with Simple Handicraft. (Nelson.) Pupil's Books, I., 4d.; II., 6d.; III., 6d.; IV., 8d. Teacher's Books, I., 1s. 6d.; II., 1s. 6d.

All the new arithmetics give great prominence to problems dealing with matters well within the pupil's range of knowledge. Mere mental gymnastics find no place, and the number of aimless calculations is limited to what seems sufficient to teach accuracy in performing the mechanical operations.

"A New Geometry." By W. M. Baker and A. A. Bourne. (Bell.) 2s. 6d.

"Solid Geometry." By C. Godfrey and A. W. Siddons. (Cambridge University Press.) 1s. 6d.

An excellent introduction to the geometry of planes and lines in space.

"The Teaching of Geometry." By D. E. Smith. (Ginn.) 5s. 6d.

Historical and pedagogic. The writer deals solely with Euclidean geometry and the substitutes which have been proposed.

"Cross-Ratio Geometry." By J. J. Milne. (Cambridge University Press.)

"Junior Algebra." By W. G. Borchardt. (Rivingtons.) 2s. 6d.

"A School Algebra." Part II. By H. S. Hall. (Macmillan.) 1s. 6d.

The principal topics treated in this part are the progressions and the binomial theorem.

"Practical Mathematics and Geometry." A Text-book for Advanced Students in Technical and Trade Schools. By E. L. Bates and F. Charlesworth. Part III., Advanced Course. (Batsford.) 3s. net.

"Elementary Trigonometry." By F. T. Swanwick. (Cambridge University Press.) 4s.

A course of work arranged so that the pupil may obtain a knowledge of numerical trigonometry, including the solution of triangles, before studying the analytical aspects.

"A New Trigonometry for Schools and Colleges." By J. B. Lock and J. M. Child. (Macmillan.) 6s.

An entirely new book, embodying, however, the excellent characteristics of Mr. Lock's previous trigonometries.

"A School Calculus." By A. M. McNeile and J. D. McNeile. (Murray.) 7s. 6d.

"Analytical Mechanics, comprising the Kinetics and Statics of Solids and Fluids." By E. H. Barton. (Longmans.) 10s. 6d. net.

Suitable for use by students who are acquainted with only the elements of the calculus.

"Treatise on Dynamics." By A. Gray and J. G. Gray. (Macmillan.) 10s. net.

Embraces dynamics of particles and of rigid bodies. It is noteworthy on account of the large number of practical problems discussed.

"Lectures on Fundamental Concepts of Algebra and Geometry." By J. W. Young. (Macmillan.) 7s. 6d. net.

An exposition of the logical bases of mathematics.

"Monographs on Topics of Modern Mathematics relevant to the Elementary Field." Edited by J. W. A. Young. (Longmans.) 10s. 6d. net.

This is essentially a more complete discussion of a number of the topics touched upon in the preceding work.

"Introduction to Mathematics." By A. N. Whitehead. (Williams and Norgate.) 1s. net.

A popular exposition of the object and methods of mathematical investigation.

Chemistry and Physics.

CHEMISTRY.

"Inorganic Chemistry." By W. M. Hooton. (Arnold.) 3s. 6d.

A matriculation course.

"Outlines of Experimental Chemistry." By E. B. Ludlam and H. Preston. (Arnold.) 2s.

A laboratory course, partly heuristic. Answers to questions are supplied by the authors to teachers.

"Outlines of Inorganic Chemistry." By E. B. Ludlam. (Arnold.) 4s. 6d.

Use is made of the historical method, and the metals are treated at an earlier period than usual.

"School Chemistry." By F. R. L. Wilson and G. W. Hedley. (Clarendon Press.) 4s. 6d.; separately, Part I., 2s. 6d.; Part II., 2s. 6d.

"Introduction to Practical Chemistry." By G. B. Neave and J. Watson Agnew. (Blackie.) 2s.

"Elementary Experimental Chemistry." By F. E. Weston. (Longmans.) 2s.

Contains good practical instructions for a course of experiments leading to discovery of principles; a very good introduction to the subject.

"A Course of Practical Work in Agricultural Chemistry for Senior Students." By T. B. Wood. (Cambridge University Press.) 2s. 6d. net.

Teachers in country schools will find useful suggestions.

"A Class-book of Chemistry." By G. C. Donington. (Macmillan.) 3s. 6d.

A judicious combination of laboratory manual and descriptive text-book for the new London matriculation syllabus.

"Theoretical Chemistry." By W. Nernst, translated by H. T. Tizard. (Macmillan.) 15s. net.

This new edition contains much new matter.

"A Concise History of Chemistry." By T. P. Hilditch. (Methuen.) 2s. 6d.

"Elementary Chemical Theory." By J. M. Wadmore. (Methuen.) 3s. 6d.

"A Text-book of Inorganic Chemistry." By G. Senter. (Methuen.) 6s. 6d.

Similar in scope to the "Green Newth," and is up-to-date.

PHYSICS.

"General Physics for Students." By E. Edser. (Macmillan.) 7s. 6d.

A book the teacher ought to read.

"College Physics." By J. O. Reed and K. E. Guthe. (New York: The Macmillan Company.) 12s. net.

"Treatise on Practical Light." By R. S. Clay. (Macmillan.) 10s. 6d. net.

The best laboratory book yet written on this neglected subject.

"Notes on Practical Physics." By A. H. Fison. (Arnold.) 3s. 6d.

"Practical Physics." By J. Talbot. (Arnold.) 2s.

"An Elementary Treatise on Light." By W. H. Topham. (Arnold.) 2s. 6d.

"Electricity in Locomotion." By A. G. Whyte. "Aerial Locomotion." By E. H. Harper and A. Ferguson. "The Steam Turbine." By C. A. Parsons. (Cambridge University Press.) 1s. each.

"The Progress of Physics during 33 Years, 1875-1908." By A. Schuster. (Cambridge University Press.) 3s. 6d.

"Text-book of Heat, Theoretical and Practical." By R. W. Stewart and J. Satterly. (University Tutorial Press.) 4s. 6d.

"A School Course of Heat." By R. H. Scarlett. (Longmans.) 3s. 6d.

Natural History.

BOTANY.

"Types of British Vegetation." Edited by A. G. Tansley. (Cambridge University Press.) 6s. net.

Essays by members of the Central Committee for the Survey and Study of British Vegetation. The most authoritative volume on British plant ecology yet published. An invaluable book of reference.

"British Plants: their Biology and Ecology." By J. F. Bevis and H. J. Jeffery. (Alston Rivers.) 4s. 6d. net.

A novel and excellent text-book of botany for students, written entirely from the ecological point of view.

"Plant Physiology." By Benjamin M. Duggar. (New York: The Macmillan Company.) 7s. net.

"Practical Plant Physiology." By Frederick Keeble. (Bell.) 3s. 6d.

"Practical Botany." By F. Cavers. (Clive.) 4s. 6d.

Three valuable manuals of practical experimental botany, the third dealing also with histology.

"Practical Botany." By J. Y. Bergen and O. W. Caldwell. (Ginn.) 6s.

"Botany for High Schools." By G. F. Atkinson. (Bell.) 4s. 6d. net.

Two admirable American text-books, both sumptuously illustrated. The title of the former is somewhat misleading, as the book does not contain practical exercises.

"An Intermediate Text-book of Botany." By E. Evans. (Longmans.) 6s.

Intended for students of Intermediate B.Sc. standard. Well illustrated.

"Garden and Playground Nature-study." By J. Eaton Feasey. (Pitman.) 2s. 6d. net.

Observational studies in plant life, light, heat, &c., for primary and secondary schools.

ZOOLOGY.

"Elements of Zoology." By C. B. and G. C. Davenport. (New York: The Macmillan Company.) 5s. 6d. net.

Revised edition. A useful study of types of the principal groups, largely in relation to environment.

"First Book of Zoology." By T. H. Burlend. (Macmillan.) 1s. 6d.

A very attractive and judicious introduction to the subject.

"The Monkey Folk of South Africa." By F. W. Fitzsimons. (Longmans.) 5s. net.

Written mostly in the form of anecdotes. The animals are made to tell their own stories. Well illustrated, and would make a good gift-book.

GENERAL BIOLOGY.

"The Country Life Readers." By Arthur O. Cooke. (Henry Frowde: Hodder and Stoughton.) 7d. each.

Include several volumes on general natural history. Exceptionally well written and produced.

THE TEACHING OF ELEMENTARY FORMAL GEOMETRY.¹

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

THE fundamental notions of elementary geometry present themselves very early in the history of a race's development from barbarism. Thus the sun and the moon give primitive men the idea of a circle, and the fact that most trees grow vertically upwards engenders the conception of a right angle. Methods of describing circles and drawing right angles are in time obtained as they are required for the growing needs of the community. Thus the ancient Egyptians had to build vertical walls for their pyramids, and in order to obtain the necessary right angles they employed the method of "rope-stretching," that is, they formed a triangle with ropes of lengths proportional to 3, 4, and 5, or other suitable numbers. Problems of greater complexity soon present themselves in the practical life even of a primitive people. The successful solution of these problems is at first accomplished directly with a view to the practical needs of the moment; but gradually in this way geometrical facts of greater complexity are reached, and the subject begins to attract some minds to investigate it for its own sake. Geometry then becomes a primitive science.

The oldest traces of geometry are found among the Egyptians and Babylonians, and from them it was transplanted to Greek soil. There it flourished, and gradually a large body of geometrical properties was evolved. About 300 B.C. Alexander the Great opened his new university at Alexandria, and Euclid was appointed head of the mathematical department. This remarkable man was not only a great investigator, but also a great teacher, and his appointment at Alexandria marks a distinct epoch in the history of geometrical teaching. He composed and published his "Elements" for the use of his own pupils or such other people as might be interested in the subject, and this book remained the standard text-book on the subject right down to the present day. In this treatise he gathered and put into systematic form and sequence the most important propositions in elementary geometry, and thereby made the subject capable of comprehension and appreciation by beginners. But he was not content to execute this task only. He tried to show the fundamental concepts on which our geometrical knowledge is built, and he therefore commenced his book by a series of axioms which everyone is bound to accept as a result of experience. The "Elements" are therefore, in so far, a philosophical treatise as well as a catalogue of the propositions and proofs necessary to a working knowledge of elementary geometry. It contains an inquiry, crude though it may appear in the light of later researches, into our fundamental geometrical apperceptions. The merits of this work, considered merely as a text-book, are too evident to require detailed consideration. It was the work of a singularly gifted and experienced teacher—clear, precise, and logical; and it stood the test of centuries, for it continued to be practically the only text-book used by teachers of geometry throughout the Middle Ages right down to the present day.

It is necessary now to turn aside from purely geometrical teaching and to consider the rise and development of another science that cannot be divorced nowadays from geometrical teaching or any other kind of teaching, namely, the science of pedagogy. This simply means, first, the study of the mental processes whereby any body of know-

ledge is learned; and, secondly, the application of these principles and the study of the particular processes whereby any given branch of knowledge may be learned or taught. The older teachers taught each according to his light, and each one was a light unto himself. Thus Euclid was taught—or in some cases it would be more fitting to say administered—in various ways. With the older schoolmasters everybody had to learn the numbers of the propositions. The mother of Archbishop Temple required that her family should reproduce Euclid's words verbatim, while a professional teacher—now a master of method—placed one hand on either side of the pupil's head and administered a sharp corrective if the unhappy pupil forgot to say: "These are the angles at the base" and "these are the angles on the other side of the base" when he was going through the Pons Asinorum.

Even in the great schools there was a latent—if not explicitly expressed—idea in the minds of most masters that the school existed for the cleverest boys, and that it was their duty to discover and train them, and to let the others drift on with as little attention on their part as possible. Thanks to the labours of men like Pestalozzi, Froebel, and others, driven home in Britain by the ceaseless energy and vitality of great educators like Arnold of Rugby and Edward Thring of Uppingham, it is now recognised as a fundamental dogma of every schoolmaster that when once a pupil has been admitted into a school it is that school's duty to do its very best for him. The great point in pedagogy thus achieved is that every boy in a school is capable of training and ought to be trained, and that the stupider the boy the more skilled a master it requires to teach him.

Let us now consider this pedagogic principle in relation to the teaching of geometry and the using of Euclid's text-book as a means to that end. Probably Euclid, and certainly masters of the last generation and those before, aimed principally at training the best boys. The moment that it is conceded that *all* the heterogeneous mass of boys in a school must be trained, it soon becomes apparent that the "Elements of Euclid" is an unsuitable text-book. The following are specimens of its main defects for boys who have no particular geometrical bent.

(1) The book plunges at once into the thick of abstract geometry without any preliminary training in geometrical concepts.

(2) Many of the axioms need not be stated explicitly at all. By their formal printed statement they raise in the mind of the young boy the idea that he is now confronted with some very hard truth, which he sees perfectly well, but knows that he ought not to see, or else it would not have been printed. One need only consider such statements as "things which are equal to the same thing are equal to one another." Any boy accepts the truth of that at once when he requires it.

(3) Much of the treatment is too cumbersome. For instance, it is questionable if even Euclid himself would have used the methods he gives in Props. II. and III., Book I., for "drawing a line from a given point equal to a given straight line," and "cutting off from the greater of two lines a segment equal to the less."

Thus the virtues of Euclid's text-book are obvious, and its defects are equally plain. Gradually there arose a body of opinion in England that the geometrical part of a boy's education was in theory the finest training in logic that he received at school, but that it lamentably failed in practice owing to the unsuitability of Euclid's "Elements" as a text-book for the average boy. This feeling of dissatisfaction culminated in the formation of the Association for the Improvement of Geometrical Teaching.

¹ A paper read in the first instance to the Bristol Association of Science Teachers. Since then the author has to a considerable extent rewritten the paper in the hope that the historical survey may be of interest to other teachers dealing with the problems presented by the teaching of elementary formal geometry to young boys.

This association was not at first itself perfectly clear in its aims, and it had to fight valiantly against ignorance and prejudice on one hand and against many of the great mathematical authorities on the other, who knew geometry as a body of knowledge and as a subject to be taught to maturer minds, but were without experience in the workings of the mind of a small boy. It will be interesting to note some of the views held by that great mathematical teacher and investigator of last generation, Isaac Todhunter. I quote from his book entitled "Conflicts of Studies and other Essays." He concludes his essay on elementary geometry by saying:

"In conclusion, I will say that no person can be a warmer advocate than I am for the improvement of geometrical teaching; but I think that this may be attained without the hazardous experiment of rejecting methods, the efficiency of which a long experience has abundantly demonstrated."

He applies the following criteria to test the efficacy of the old method of teaching geometry with Euclid's "Elements" as the text-book:

"I admit that to teach Euclid requires patience both from the tutor and the pupil; but I can affirm that I have known many teachers who have succeeded admirably, and have sent a large number of pupils to the university well skilled in solving deductions and examples; nor have I ever known a really able and zealous teacher to fail. I am happy to supplement my own testimony by an extract from the very interesting lecture on geometrical teaching by Dr. Lees, of St. Andrews: 'Whatever may be the cause of failure in England, it is clear as any demonstration can be that the failure cannot be ascribed to Euclid. Because in Scotland we do employ Euclid as the text-book for our students, and in Scotland we have the teaching of geometry attended with the most complete success; and this not only in the colleges, but in all the higher and more important schools and academies of the country, and in many of the parish schools even, where the attention of the teacher is necessarily so much divided.'"

There is here some very weighty opinion, and it cannot be cast lightly aside. It may be said, however, that perhaps the teachers of last generation did not aim at penetrating to such a low stratum of the intellect of a school as do their successors of to-day. Whether that be granted or not, it is certainly found best in actual practice to make any given subject touch and intertwine itself, so far as possible, with the actual everyday life of the boys. Geometry is no exception. Baden-Powell states in his recent article on "Scouting" that he does not recommend the scouts to start rowing by learning first all the strokes. He gets two boats to try which will first manage to row out into the midst of a broad lake and harpoon a log, and the scouts then see the advantage of strokes well regulated and practise them for that reason.

Now Todhunter in his long essay considers geometry as a mental exercise the proficiency of which is to be tested in the examination hall rather than as a subject capable of exciting a real live interest in the mind of the boy. It is perhaps here more than anywhere else that the teachers of to-day have made a distinct advance. The pioneers in the movement for the improvement of geometrical teaching maintained that the concepts of the pupils on circles, right angles, straight lines, &c., should first of all be cultivated before they attempted to put them formally into words—that they should actually draw and measure triangles, angles, &c., as a preparation for reasoning about them. They recognised that a good deal of Euclid's expressions were unnecessarily prolix and verbose, and they wished teachers to try to simplify his forms of expression.

Another point they also saw, and it is impossible to argue past it: Euclid's definition of ratio is entirely beyond the powers of comprehension of any but a really good mathematician. It still stands as the marvel of the great arithmeticians of the present day how so ancient a mathematician could ever have attained to such a marvellous conception. Here, then, we have the first sharp conflict between logic and expediency. Euclid has built up a rigorous logical system of propositions founded on his definition of ratio; were human beings so constituted as to be able to understand it, all would be well: there would be no conflict. But experience soon shows that only the very few can attain to it. It seems both logical and expedient to face this fact.

Let us now consider some of the effects produced throughout the country by the efforts of the leading mathematical teachers of the days when the Association for the Improvement of Geometrical Teaching started to render the teaching of geometry more real and practical to the boy and less formal and unfamiliar in its verbal expression. Many teachers thought that the days of hard reasoning had gone, and they substituted a course of intuition and measuring in its place. Others interlarded their geometrical teaching with a good deal of slang to make the boy feel thoroughly at home. A rhombus became the ace of diamonds, and a circle was defined as the section of a drain-pipe. There can be no doubt that the fears of such men as Todhunter in these lines were amply realised; but now the pendulum is beginning to swing back, and teachers are engaged in an honest effort to construct a deductive system of geometrical propositions based on geometrical concepts formed from experience and supported by ample practice in using these propositions in practical life. Thus it is now agreed upon that at the outset some oral lessons should be given on the geometry of the class-room. It will not take long before boys of even eight or nine can point out the right angles in the room, the rectangles or parallelograms, the rhombuses, the circles, the squares, &c. The pupils will then have clear enough mental conceptions of these entities, though it is tolerably certain that few or none of them could of themselves give satisfactory definitions.

The theoretical course should not be introduced by a confusing catalogue of strange definitions and terminology, but these should be introduced as the subject unfolds itself. Some of the definitions given by Euclid should not be given at all. Thus his definition of a straight line is neither logical nor expedient. It seems tolerably certain that our notion of a straight line is built up on experience. At all events, to say that "it lies evenly between its extremities" does not afford a satisfactory definition, and, furthermore, it only confuses the minds of the lads. They all know very well what a straight line is, and let the matter rest there. Again, it is questionable if we shall ever improve on the Highland student's definition of a point to his Glasgow professor: "Sir, a point is a daub." Furthermore, boys' notions of planeness are drawn from the walls, the blackboard, the roof, the floor, and they are far advanced in geometry before they appreciate Euclid's test of taking two points in the plane and showing that the line joining them lies wholly in that plane. To beginners a plane figure is one that can be drawn on the blackboard or on the walls of the room, but not on a figure of the earth or on a bowler hat (in general). Rigorous definitions, where they are capable of comprehension and appreciation, should be given, e.g., of a circle or a parallelogram, but where they are outside the experience and powers of comprehension of the pupils, to introduce them is a mere educational sham.

Let us now take the case of teaching some definite proposition, such as that "the three angles of a triangle together equal two right angles." Pedagogic science suggests that the class should be set, first of all, to draw several triangles, to measure their angles, and then to find their sum. Having drawn the inference that if they could draw and measure with perfect accuracy the sum would in all cases be exactly 180° , they have acquired a clear conception of this fundamental property of a triangle, and they are then in a position to deal with the theoretical proof.

Lastly, concerning the proofs depending on the notion of the ratio of incommensurable quantities, it seems inevitable to recognise the fact that this branch of arithmetical geometry is utterly beyond most of them, and that they must perforce be taught only the cases where the ratios are commensurable. It is indeed advisable to show them why these proofs fail in such cases as $\sqrt{2} : \sqrt{3}$, &c., and to point out that these theorems hold for quantities commensurable the value of which differs from the ratio $\sqrt{2} : \sqrt{3}$, &c., by as little as we please. Further than this it is to be feared we cannot get, save with exceptional boys.

The question of selecting a suitable text-book must be left to the discretion of the teacher, but the one chosen should have propositions well arranged and clear and crisp in their statement and proof. The propositions must be dogmatically printed for being learned at home. The practical work and the oral discussion in school will not suffice. Propositions not mastered and learned at home are hazy and vaporous; they are not clear and sharply defined.

Many suggestions have been put forward in trying to render Euclid less cast iron and more palatable for young boys. We shall consider some of these.

I. HYPOTHETICAL CONSTRUCTIONS.—It is held by many eminent authorities on the teaching of geometry that hypothetical constructions ought to be allowed with the view of simplifying many otherwise complicated and awkward proofs. This simply means that the possibility of giving a solution to certain geometrical problems ought to be admitted even before the actual practical method of performing the problem in question can be presented to the boys. Thus if we assume that every angle can be bisected, we obtain a proof of the Pons Asinorum which is much less complicated than that given by Euclid. But it is not easy at this early stage of the pupil's geometrical career to give a construction whereby an angle can actually be bisected and an accompanying proof to show rigorously that the construction achieves what it professes. Thus the advantage of admitting hypothetical constructions is undeniable; but the disadvantages are equally undeniable. Now it was remarked to Todhunter by a very acute mathematician, who was also an examiner of eminent ability and long standing: "Why should a beginner not assume that he can draw a circle through four given points if he finds it convenient?" It would seem, then, that although hypothetical constructions should be admitted, still only the very simplest should be so used. Any beginner will see that if we have a line at all it can be halved, and so with an angle; and what can judiciously be allowed and what forbidden is one of the most difficult problems of this warfare between logic and expediency.

II. INTUITION.—Again, many authorities declare that intuition ought to be admitted, and that such considerations as symmetry ought to be used freely. Here again we are on dangerous ground. What is meant by intuition? Intuition is a relative term. What is intuitive to a man of twenty-five is anything but intuitive to a boy of ten or twelve, and what is intuitive to a highly trained mathematician may be incomprehensible to both of them. It seems here again, that Euclid erred on the safe side,

if, indeed, he erred at all. I can only quote my own experience in the case of an appeal to symmetry. This last summer I had occasion to correct the geometrical papers of a certain school. One proposition set was: "Prove that if two circles intersect in real points, their common chord is perpendicular to the line joining their centres." The pupils had evidently been taught this rider in class, as all attempted it and all appealed to symmetry, that is, they folded the paper about the line of centres and showed by reasoning that one of the common points of the two circles coincided with the other. Only five out of the twenty-five candidates had the remotest idea of the crux of the method. All the rest was cloud and vapour. Many teachers of long experience have come to regard "symmetry" and "intuition" as dangerous weapons in the hands of raw inexperience.

III. METHOD OF LIMITS.—The introduction of the method of limits to prove such propositions as that "the tangent is perpendicular to the radius drawn to its point of contact," and "the angle between a tangent and a chord drawn from the point of contact is equal to the angle in the alternate segment," is a distinct advance on Euclid. The method of limits is the *direct* method. It gets the properties straight from the definitions, and is the method employed in all higher work.

IV. THE ANALYSIS OF A PROOF.—It has also been urged against Euclid that he gives no clue as to his method of obtaining a proof or a construction, and that he ought to give the analysis whereby such proofs or constructions are obtained. The reply to that seems to be that that is the living teacher's business. I have used text-books where the analysis of such problems as "How to draw a common tangent of two circles" is given in detail. The pupils can make nothing of it. They are in a perfect fog; and even if I have gone carefully over the construction the day before, they cannot synthesise it for themselves. It would appear, then, that the finished construction and proof must be definitely stated by the text-book, and the steps by which that proof was arrived at have to be given by the teacher in his oral lesson.

We have hitherto dealt with the problem of geometrical teaching as applied to beginners and pupils not far advanced. We shall now discuss the question of teaching geometry to pupils further on. For examination purposes, if not for any other reason, teachers are compelled to revise the elementary portions of the subject when the boys have reached the age of seventeen or eighteen; and the problem before them is how to make this teaching really valuable, and not a mere dull repetition of the propositions. It would be well now to regard the subject from a more comprehensive point of view than in the elementary course. Thus one might give an oral lesson on "area" as treated by elementary geometry before the consideration of ratios is undertaken. Up to that point no attempt is made to measure areas. Euclid regards two areas as equal in the first instance when he can superpose them so that their edges or rims exactly coincide. An immediate result from that is the equality of the areas of two parallelograms standing on the same base and between the same parallels. Here a distinct advance is made, inasmuch as two figures of quite different shape are proved equal in area by superposition. When this is shown to the class by means of pieces of paper cut up and shifted about, it makes an unmistakable impression and gives the proposition quite a different aspect for them.

Again, let us take Pythagoras's theorem, and propose to them the following problem: "Given two square pieces of paper of different sizes, show how to cut them up and piece them together again so as to get one single square."

I have done this operation in class with boys not very bright, and it evoked undoubted interest. But I feel safe to say that if Pythagoras's theorem were proposed in the above form by one of our newspapers as a puzzle problem not 2 per cent. of our British schoolboys familiar with Pythagoras's theorem from their earliest boyhood could successfully compete for the prize. All these illustrations, and whatever others the teacher can devise, are of the utmost value in illuminating the series of deductive geometrical propositions; but it seems imperative that after our oral lessons and all their wealth of illustration and practical work we must say: "Learn proposition 13, page 45," if accuracy of knowledge is to be attained.

Such, then, is a brief survey of the teaching of formal geometry as it stands to-day. A great advance has been made, but much yet remains to be done.

OXFORD UNIVERSITY LOCAL EXAMINATIONS.

SET SUBJECTS FOR 1913.

Preliminary (July only).

Religious Knowledge.—(a) 2 Samuel (chap. v.-xx.), (b) St. Mark, (c) Acts (chap. i.-xii.), (d) the Church Catechism.

English History.—Either (a) the Outlines from 55 B.C. to 1399 A.D., or (β) the Outlines from 1399 to 1714, or (γ) the Outlines from 1689 to 1837.

English Author.—(b) Kingsley, "Water Babies"; (c) Scott, "Lay of the Last Minstrel"; (d) Keary, "Heroes of Asgard" (second edition) (Macmillan); (e) "Poems of English Country Life," by George and Hadow.

Geography.—(iii) The geography of one of (a) England and Wales, (β) Scotland and Ireland, (γ) Canada.

Elementary Latin.—"Lives from Cornelius Nepos," by J. B. Allen (Clarendon Press).

Elementary Greek.—Sidgwick's "First Greek Reading Book" (ed. iii.). Exx. 1-35, 51-60. (Rivingtons.)

Elementary French.—Either "Contes de Fées," by Perrault (Hachette), or "Le Château de Vaux," by Goxlain (Clarendon Press).

Elementary German.—"Short German Plays," by E. S. Buchheim, second series, pp. 1-42 (Clarendon Press).

Junior (March and July).

Religious Knowledge.—(a) Old Testament History from the descent of Jacob into Egypt to the election of Saul, (b) 2 Samuel, (c) St. Mark, (d) Acts i.-xv., (e) Prayer Book.

Greek History.—Outlines of Greek History from 445 to 323 B.C.

Roman History.—Outlines of Roman History from 343 to 146 B.C.

English History.—(a) 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 410 to 1215, or (ii) from 1715 to 1816.

Foreign History.—Outlines of General European History from 1515 to 1610.

English Literature.—(b) Tennyson (complete [Globe] edition), pp. 28-124, 165-286, 418-433, 499-537; (c) Shakespeare, "Richard II.," "Julius Caesar," "Macbeth"; (d) either Shakespeare, "Twelfth Night" or "Coriolanus"; (e) Shakespeare, "As You Like It"; (f) Scott, "Lay of the Last Minstrel"; (g) Scott, "Old Mortality";

(h) Kinglake, "Eothen"; (i) Byron, "Childe Harold," canto iii., with Goldsmith, "The Traveller" and "The Deserted Village"; (j) Dickens, "Pickwick Papers"; (k) "Poems of English Country Life," by George and Hadow; (l) Crabbe, Blake, Hood in "Select English Classics," edited by Sir A. T. Quiller-Couch (Clarendon Press).

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.—Caesar, "De Bello Gallico," IV.; "Selections from Erasmus," by P. S. Allen; "Selections from Ovid," by A. C. B. Brown (Clarendon Press).

Greek.—Xenophon, "Anabasis," IV.; Marchant's Greek Reader, vol. i. (Clarendon Press).

French.—Either Erckmann-Chatrion, "Waterloo" (Hachette), or Michelet, "Jeanne d'Arc" (Clarendon Press).

German.—Hauff, "Karavane."

Senior (March and July).

Religious Knowledge.—(a) Old Testament History from the accession of Hezekiah to the capture of Jerusalem by Nebuchadnezzar, (b) 2 Samuel, (c) St. Mark, (d) St. Mark in Greek, (e) Acts i.-xv., (f) Epistles (Philippians and 1 Peter), (g) English Church History from 1066 to 1215, (h) Gore, Bampton Lectures, i.-vi., (i) Prayer Book.

Greek History.—Outlines of Greek History from 445 to 323 B.C., with special questions on the period of Philip and Alexander.

Roman History.—Outlines of Roman History from 343 to 146 B.C., with special questions on the second Punic War.

English History.—(i) Either (a) 55 B.C. to 1135 A.D., or (β) 1042-1485, or (γ) 1399-1714, or (δ) 1603-1815, or (e) 1689-1880, or (ii) the Outlines of English Political History from the Anglo-Saxon Conquest to 1837.

General History.—Either (a) from 410 to 1215, or (β) from 1715 to 1816, or (γ) the Extension of European power to other Continents.

Foreign History.—Outlines of General European History from 1515 to 1610.

English Language and Literature.—(b) General Literature. A large choice of questions will be given. (c) Tennyson (complete [Globe] edition), pp. 28-124, 165-286, 418-433, 499-537; (d) Shakespeare, "Richard II.," "Julius Caesar," "Macbeth"; (e) either (a) Shakespeare, "Hamlet," or Shakespeare, "Coriolanus"; (f) either Shakespeare, "As You Like It," or "Oxford Treasury of English Literature," vol. iii., pp. 1-282, by G. E. and W. H. Hadow (Clarendon Press); (g) Scott, "Lay of the Last Minstrel"; (h) Scott, "Old Mortality"; (i) Burke, "Thoughts on the Present Discontents"; (j) Browning, "Strafford"; (k) Lamb, "Essays of Elia" (first series); (l) Carlyle, "Heroes and Hero Worship" (Lectures 2, 3, 5, 6); (m) either Chaucer, "Prologue to the Canterbury Tales," or More, "Utopia"; (n) Dickens, "Pickwick Papers"; (o) "The Coverley Papers from *The Spectator*," edited by O. M. Myers (Clarendon Press); (p) Pope, "Rape of the Lock" and "Essay on Criticism."

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

Latin.—Virgil, "Aeneid," III., IV., or Caesar, "De Bello Gallico," V., VI., or Cicero, "In Catilinam," I., II., or Livy, IX.

Greek.—Either Euripides, "Medea," or Xenophon, "Anabasis," V., VI.

THE POSITION AND VALUE OF SCHOOL EXAMINATIONS.

It may be interesting to give some figures illustrative of the work done by the various bodies which undertake to provide examinations of a moderate standard in the various branches of knowledge.

These figures are taken from official sources, but are not official. It is probable that they are not wholly accurate. They are certainly not wholly complete. For instance, the Scotch Education Department holds annual examinations for its intermediate and school-leaving certificates. In 1910 4,093 of the former and 1,080 of the latter were awarded, but the numbers of the candidates are not published. At any rate, the figures here given may serve as an indication of the number of students examined during the year 1910.

Number of Candidates examined in 1910.

University of Oxford Local examinations—		No of Candidates
Senior ... ..	...	11,780
Junior ... ..	...	7,881
Preliminary ... ..	...	3,136
		22,797
University of Cambridge—		
Higher Local examinations ... ..	...	834
Preliminary (Boys) ... ..	...	2,947
„ (Girls) ... ..	...	1,878
Junior (Boys) ... ..	...	5,984
„ (Girls) ... ..	...	3,374
Senior (Boys) ... ..	...	3,885
„ (Girls) ... ..	...	4,303
		23,205
Oxford and Cambridge Schools Examinations Board—		
Higher Certificate ... ..	...	2,165
School Certificate ... ..	...	662
Lower Certificate ... ..	...	1,065
		3,892
London University—		
Matriculation ... ..	...	5,396
Senior School examinations ... ..	...	912
		6,308
Board of Education—		
Examinations in Science ... ..	...	67,327
„ „ Art ... ..	...	46,231
		113,558
City and Guilds of London Institute (Technology—United Kingdom)... ..		24,508
London Chamber of Commerce—		
Junior ... ..	...	7,230
Senior ... ..	...	3,976
Teacher's Diplomas ... ..	...	399
		11,605
College of Preceptors—		
1st class (Senior) ... ..	...	892
2nd „ (Junior) ... ..	...	3,000
3rd „ ... ..	...	2,726
Lower Forms ... ..	...	2,529
		9,147
National Union of Teachers ... ..	...	14,410
Pitman's Shorthand examinations—		
Teacher's Certificate ... ..	...	625
Lancashire and Cheshire Union of Institutes—		
Ordinary ... ..	...	25,918
Course ... ..	...	15,821
		41,739
		271,794

We thus get a total of 271,794 examinees. If to this we add the 27,330 examined by the Royal Society of Arts

¹ From an article on Examinations in the Journal of the Royal Society of Arts, November 10th, 1911.

in 1910, we have a total of 299,124—say, 300,000 candidates examined in elementary- and secondary-school subjects during the year. To this must be added the results of all the university and professional examinations, and of all the competitive examinations for the Army, Home and Indian Civil Services, &c.

These figures certainly show that there is an enormous demand in this country for examinations, and that the demand is fully supplied. Most people will admit that, whether examinations are or are not desirable, the thing is somewhat overdone. Whether all this examination is a good thing or a bad thing, there is no doubt an increasing feeling of dislike to it; and we are now probably at the stage of reaction against over-examination.

There are two points in which examinations have, or may have, a value: first, as a test of knowledge, and, secondly, as an incentive to the acquisition of knowledge. As to their value as a genuine test of knowledge, it is rather difficult to form an opinion. They can only test the information there is in the candidate's head at the moment, and in too many cases that information has acquired but a temporary resting-place there. An examination is, probably, a better test of a candidate's power of acquiring knowledge than it is of the amount he possesses, and perhaps that may be considered as an argument in its favour. As a matter of fact, the question cannot be answered in general terms. Perhaps no better test need be desired of a man's mathematical knowledge than the mathematical tripos at Cambridge. But an elementary examination in physics or chemistry, or indeed in most other subjects, offers but a poor means of estimating the real amount of knowledge possessed by a candidate. Yet it must always be remembered that, on the whole, a student who has passed an examination is probably a little better informed and a little better instructed than one who has failed; and if the possession of an elementary certificate does not amount to a great deal, at all events it means something.

As an incentive to the acquisition of knowledge, it is evident that the present system of examination has its value; its enormous extent alone is sufficient to show that. There are very few such earnest students as to be satisfied with the acquisition of knowledge for its own sake; and in the case of most people, especially of young people, an artificial stimulus is required. This stimulus, it is found, can very satisfactorily be provided by hall-marking those who have passed an examination, and allowing them to bear some special title—as “Dr.” or the like—or permitting them to attach certain initials to their names.

There is, therefore, a good deal to be said in favour of general examinations, although there is a good deal to be said against them on the score of the superficiality of the knowledge that they tend to produce, and also on account of the very erroneous idea that has been disseminated that the fact of a student having passed an examination is any evidence whatever of his possessing a knowledge of the subject examined in. On the whole, we have got the system firmly established, though perhaps it is rather overgrown and wants pruning. But the important question is to make the system as good and as practically useful as may be.

The Zoo Reader. By Gladys Davidson. 170 pp. (Pitman.) 1s. 6d. net.—This is another book of “conversations with animals.” It is well written and entertaining, appears to be generally accurate in statement, and contains good illustrations. It will probably become popular in schools.

HISTORY AND CURRENT EVENTS.

THE war between Italy and Turkey still continues, and at present there seems to us outsiders no sign of its coming to an end. The European world has been shocked by some of the incidents of the warfare. We sympathise naturally with the pain; but why the surprise? It is a war between men of different race and creed. They worship different gods. There is, therefore, no "common Father." "My God is your Devil." There is, therefore, no brotherhood, no common humanity. This may appear too strong a way of putting it; but that is because we are advancing, though the advance is yet but small, towards a universal religion. But let our readers recall the Indian Mutiny, or turn to their Old Testaments and read of Israel's wars. Our translators have not given us the full meaning of the commands of JHVH. "Thou shalt utterly destroy" should be translated always, as the Revised Version sometimes shows, "Thou shalt devote," that is, to Me such or such a city. Sometimes it is "Thou shalt make it a whole burnt offering." With all our Hague Tribunals and Societies of the Red Cross, have we, in wars with non-European peoples, advanced far from this?

SOME years ago we had occasion to comment on the movement in Austria called by those in that country "Los von Rom," which has been translated into English with the words "Away from Rome." It seems that the movement still exists, and claims to be making progress. We may therefore be justified in once more directing the attention of our readers to this curious illustration of the close connection between religion and politics. The leaders of the movement speak of it as a purely religious affair—a matter of the individual conscience between God and man—and complain of "petty persecution" of the old type. But it may be pointed out, in order to understand the inner meaning of the process, that it takes place mainly, if not entirely, among the German populations of the Austro-Hungarian monarchy. When, therefore, we remember that the German Empire is largely Protestant, and that the leading State therein is officially so, and also recall the events of 1848 and again of 1866, the suggestion occurs that there is just as much of politics (perhaps unconscious) as of religion in the "revolt."

WE teachers have now an excellent opportunity of seeing how the subject of history appears to our less intelligent pupils, or at least to those who do not "like" the subject. China and Japan have become supremely interesting, and it seems probable that their history will soon be forcing its way into our curricula. India has long been of interest, in the literal and original meaning of that word, and our "imperial" race is beginning to realise that, in order to understand the peoples they have undertaken to govern in that world, they must read other histories than those of *British India*. It is we who will increasingly be compelled to introduce these subjects to our pupils in order that they may grow up familiar, to a certain extent, with the world problems they will have to face. Let, then, the teacher sit down to read some of the many books which have appeared lately, say on Korea, and then "shut the book and write out from memory" at least half a dozen of the names of persons and places he has read of, with approximate dates or locations. And whether he deal with the three monosyllables of a Chinaman's name or the polysyllabic procession which some of our Indian subjects own, will he escape "mistakes" such as those for which our youngsters have to "write it out twenty times"?

HE who claims to be the head of the Christian Church, and whose claims are regarded as legitimate by a large

part of the inhabitants of Western Europe, has been creating new princes for the "Catholic Church." Rome still rules the nations, and this great fact of European history is emphasised by the predominance of Italians in the new creations. Now there is at least one European country which has maintained the "historic episcopate," though separating from communion with the rest of Western Christendom. That separation was gradual, or rather it took two stages. In the sixteenth century it separated from Rome and the churches that obeyed the Holy See; in the seventeenth it separated from the non-episcopal churches that had come into existence in Germany and elsewhere. The separation was effected in that curious way which has led to so much discussion, viz., by a combination of the forces of State and Church which is the necessary consequence of that union between the two which Constantine inaugurated so many centuries ago. One late consequence was an episode which has now passed out of living memory, though enshrined in the histories—the passing of the Ecclesiastical Titles Act. But no one is now alarmed by the honour done to Archbishop Bourne nor by the creation of the bishoprics of Birmingham and Liverpool.

ITEMS OF INTEREST.

GENERAL.

THE scheme for the formation of a Teachers' Council, referred to in recent issues of *THE SCHOOL WORLD*, provides for university representation in the only reasonable and adequate way. To attempt to distinguish between university and university would be a thankless task, and such a plan as to divide, say, four representatives between eleven universities would be difficult and unsatisfactory. It is a statutory requirement that the council shall be representative of the teaching profession; obviously, then, the highest branch of the profession must be well represented, and the best way, probably, in which this can be done is to give each university a representative, and the Board of Education is to be congratulated on having made this provision. To secure the representative character of the council is a reason, also, for the omission of the Crown nominees, who, while they might conceivably have provided a link with the Board, could hardly be regarded as representatives of the profession. It will be found that the strongest link with the Board is the common cause—the desire for efficiency of education—which with a sympathetic Board will prove all-powerful.

As we go to press—earlier than usual, because of the Christmas holidays—the Headmasters' Conference is holding its annual meeting at Sherborne School. The following resolutions are being discussed: (i) (a) That the report of the joint committee of the Headmasters' Conference and the Preparatory Schools Association on Bible teaching be adopted. (b) That this conference invites the preparatory schools to give the proposed scheme a trial, and to make a beginning in the summer of 1912. (c) That this conference recommends that the Scripture paper in the Common Entrance examination from March, 1913, onwards, be constructed according to the joint committee's recommendation, and that a committee be nominated to be responsible for the Scripture Entrance paper and for carrying on the work of the joint committee. (d) That this conference recommends that any suggested modifications and improvements of the scheme be considered at the conference of 1913. (ii) That this conference congratulates the Board of Education on its decision to create a Teachers' Registration Council, and hopes that adequate provision

will be made for the necessary expenses of the council. (iii) That this conference recognises with great satisfaction the sympathetic attitude of the President of the Board of Education towards the deputation which waited upon him on November 14, and desires to record its belief that an adequate system of pensions and superannuation allowances is of great national importance, and that such a system should be established without delay. (iv) That this conference recommends to the notice of the universities the War Office examination for Certificate A, and asks that this certificate be recognised *quantum valeat* in their Entrance examinations. (v) A motion directing attention to the revival of the committee on the training of teachers. (vi) That this conference affirms its approval of the report of the curriculum committee, as published in the report for 1910, and desires the secretary to forward copies of it to all headmasters of preparatory schools, together with a list of those members of the conference who undertake to carry out its principles in their entrance and scholarship examinations. (vii) That this conference is not satisfied with the examination for junior appointments in the Civil Service, and with the prospects of successful candidates.

As was announced in our last issue, the annual general meeting of the Association of Assistant-masters in Secondary Schools will be held at Merchant Taylors' School, E.C., on January 5th. The following resolutions will be discussed: (i) That this association welcomes the formation of the Teachers' Council, and trusts that it will be a useful instrument in organising and unifying national education. (ii) That this association welcomes the publication by the Board of Education of statistics of salaries in State-aided secondary schools, which conclusively prove the urgent necessity of a superannuation scheme for secondary-school teachers, and feels deep satisfaction at the progress made with regard to this question during the past year. (iii) That this association deplors the many cases of arbitrary dismissal which have occurred during the past year, following upon the appointment of a new headmaster, and considers that an immediate remedy should be found for so unsatisfactory a state of things. In the afternoon a paper will be read by Dr. A. E. Shipley, F.R.S., Master of Christ's College, Cambridge, on "Students in the late Sixteenth and in the Seventeenth Century." A discussion on "The Relation of Examinations to Education" has been arranged, and Mr. P. J. Hartog, Dr. Rouse, Mr. Cholmeley, and Mr. Holland have promised to speak. The afternoon meeting will be open to members of other educational associations and to the public.

THE next annual meeting of the Association of Assistant-mistresses will be held on January 13th at the Grey Coat Hospital, Westminster. Reports will be submitted from the pension joint committee, the central information sub-committee, the federal council, the delegate to the British Association, and the joint training committee. The presidential address will be delivered, and discussions will take place on "Assistant-mistresses and the Insurance Bill," and "Pensions and Superannuation." At the afternoon meeting a paper on "The Need for more Definite Teaching of European History in Schools" will be read by Miss Berryman, of Clapham High School. Members are invited to bring friends to the afternoon meeting.

THE tenth annual meeting of the North of England Conference will be held from January 4th to 6th inclusive in Newcastle-upon-Tyne. All the meetings will be held at Armstrong College. A civic reception by the Lord Mayor of Newcastle-upon-Tyne will be held during the evening of January 4th, and the conference will be opened by Earl

Grey on the following day. United conferences will be held on both the remaining days. On the first the subject will be "Education and Practical Life," to be introduced by Sir Hugh Bell, Bart., the discussion being opened by Lord Barnard and Mr. Thomas Bell. On the second day the subject for the united conference will be "Education and the State in relation to (a) Curriculum, (b) Finance, (c) the Division of Control as between the Central and Local Authority." It will be introduced by Dr. Michael E. Sadler, and the discussion opened by Messrs. J. G. Legge and V. W. Pearson. Sectional meetings will be held in the afternoons of both days, and the following subjects will be discussed: "The Planning of Elementary Schools," "Teaching of History by means of Local Records," "A Shorter Curriculum and Fewer Examinations in Secondary Schools," "Awarding of Scholarships," "The Method of Raising the Moral Tone of the Corporate Life of the School," and "The Place of Art in a Liberal Education."

ARRANGEMENTS are being made for the second Bible Study Week for teachers in elementary and in Sunday schools, at Claydon, Bucks, next April. The object of the meeting is to give to all who are engaged in elementary teaching the opportunity of becoming acquainted with and discussing the assured results of modern Biblical scholarship. All are welcome to join the course—men and women, Anglicans and Nonconformists. Well-known scholars will give two courses of lectures on the Book of Genesis and on the first three Gospels. The lectures will occupy the mornings. The rest of the day will be left free. Expeditions to places of interest in the pretty country neighbourhood will be organised for those who care to join in them. Tickets for the week, varying from £1 to 30s., and including board, lodging, and lectures, will be allotted to the first seventy teachers who apply for them. Further information will be supplied gladly by the hon. sec., Miss Beatrice Leahy, Claydon House, Steeple Claydon, S.O., Bucks.

SIR EDWIN AND LADY DURNING-LAWRENCE have made a donation of £8,000 to the endowment fund of University College School, Hampstead, London.

THE December Cambridge Local examinations were held at 216 centres in the United Kingdom and the colonies. There were 13,698 candidates, of whom 274 are entered for the Higher, 4,175 for the Senior, 5,663 for the Junior, and 3,586 for the Preliminary examination. Of the colonial centres, 11 were in India, 6 in Ceylon, 3 in the Straits Settlements, 6 in Africa, 11 in the West Indies, 2 in America; there were also centres at Bermuda, Mauritius, Seychelles, and Shanghai.

IN the Christmas number of *T.P.'s Magazine* Mr. Desmond Coke describes the work done at Clayesmore School, Pangbourne, in an illustrated article entitled "A School for Super-men: the Modern Note in Education." Our readers may remember that by the kindness of Mr. Devine, the headmaster of Clayesmore, we were able in June, 1900, to publish an account of some aspects of the school life of boys at Clayesmore in an article by Mr. A. T. Simmons on "Modern Experiments in Education." Mr. Coke's article is bright and interesting, and may be commended to all schoolmasters who desire to become acquainted with a successful experiment in the direction of making education as practical and human as possible.

THE current issue of *Science Progress* contains two articles of direct interest for teachers. Mr. Godfrey, the headmaster of the Royal Naval College, Osborne, writes

on "Mathematics in English Schools." His contention is that the subject should be taught in such a way as to cultivate a mathematical outlook; in the future less must be thought of the faculty-training aspect of mathematical teaching; and it is admitted that, so far, mathematical thought has failed to enter as a main element into the life of the educated classes. The remodelling of the present syllabus is dealt with succinctly from this point of view. Mr. T. S. Usherwood writes on tradition in education, inspired by the recent Conference on the Education of Engineers held at the Institution of Civil Engineers. The views of Dr. Gow, that a classical training forms the best basis for the future engineer, are criticised frankly, and the case for the desirability of establishing and extending schemes of manual work in schools is clearly put. Both essays afford a suggestive indication of the trend of modern education.

VOLUME IV. of the Journal of the Municipal School of Technology, Manchester, is a record of investigations undertaken by members of the teaching staff and students of the school during the year 1910. The papers are reprinted by permission from journals of scientific societies. As in the previous volumes, the research work here recorded extends over a wide range of applied science. The papers by Prof. Gee and Mr. Brotherton on the electric resistance of the human body, by Prof. Gee and Mr. Harrison on the electrical theory of dyeing, and by Prof. Schwartz on the testing of rubber for electrical work, and on the mechanical hysteresis of rubber, appear to be the more important contributions.

THE Council of the College of Preceptors will shortly consider applications for annuities from the Hopkins Benevolent Fund. In accordance with the provisions of Dr. Hopkins's will, the annuities will be restricted to "poor gentlemen of the age of sixty and upwards whose lives have been devoted to teaching, preference being given to those holding diplomas of the College of Preceptors." Communications respecting the Hopkins Fund should be addressed to the Secretary, The College of Preceptors, Bloomsbury Square, London, W.C.

SCOTTISH.

DR. SCOUGAL, late H.M. Senior Chief Inspector, was entertained to a complimentary dinner on the occasion of his retirement from the Service. The company was an exceedingly representative one, every grade and class of teachers contributing a quota, in addition to many representatives from the other learned professions. In a delightfully reminiscent address Dr. Scougal paid a generous compliment to the teachers with whom he has come in contact during his official life. Their status in the country has improved greatly in recent years, but he does not think that even yet their work is valued by the general community as it ought to be. The work is hard and exacting. When a man puts his heart and soul into it, he is deserving of better material rewards than he attains at present. When the nation realises more fully the importance and value of the teacher's work it will insist that the hire should be worthy of the labourer.

A CONSIDERABLE section of the public interested in education is now beginning to recognise the value of teacher representatives on the different bodies which administer its affairs. A very pleasing illustration of this has just been reported from the Secondary Committee for Ross-shire. At the first meeting of the reconstituted committee the following motion was carried by acclamation in regard to the services rendered by the teacher representatives, one

secondary and three rural teachers: "That this committee expresses its sense of the special value of the services rendered to it by those of its members who are actively engaged in teaching, and its hope that school managers will be able to continue making arrangements whereby such teachers may be enabled to attend the committee's meeting." Notwithstanding this testimony, a majority of secondary committees still look with jealous eye upon the educational expert, and refuse to admit him to their ranks. There is good reason for believing that by the time another election comes round the election of teacher representatives will no longer be a matter of choice, but of compulsion.

THE inaugural meeting of the Historical Association of Scotland was held in Edinburgh University. Prof. Lodge presided over a large and enthusiastic gathering. After the constitution had been adopted and the office-bearers elected, Prof. Lodge proceeded to explain the aims and methods of the association. These may be summarised under two heads: educational activity and original research. In regard to the former, there are many obvious and pressing problems awaiting consideration. The place of history in the school and university curricula, the relative prominence to be given to national and world history, the methods of teaching history to pupils of various ages—all these are matters which can be advanced by conferences among those interested in the study of history. In regard to the second point, the encouragement of original research, it was stated that the association does not wish to encroach on the work of the Scottish History Society. It hopes to find an equally rich field, however, in the study of town council and session minutes, and in the investigation of local records generally. Prof. Tout, in the course of an interesting address, said that he approves of the action of members in forming a separate association for Scotland. He hopes the new body will be able to support the two cardinal points in the policy of the English Historical Association, viz., that British history should be a compulsory subject in all school-leaving and university entrance examinations, and, secondly, that there ought to be in every school of adequate size a history specialist. In the afternoon session Prof. Terry, Aberdeen, read a paper on "The Place of History in the Preliminary and Bursary Examinations." This gave rise to a keen and interesting discussion, the main point of controversy being whether history should be a compulsory or optional subject on the higher level. Eventually the matter was held over for further consideration.

POWER to compel attendance at continuation schools of young people between the ages of fourteen and seventeen not otherwise provided for educationally was, according to general opinion, conferred on local authorities by the Act of 1908. In many cases School Boards have passed compulsory by-laws on this understanding, and the Education Department itself advised certain Boards that, "failing voluntary means of persuasion, the Board should consider the question of adopting compulsory by-laws under the Education Act of 1908." By a recent decision it is made perfectly clear that while School Boards have power to frame compulsory by-laws, there is no Court in Scotland which can punish a young person who fails to obey the compulsory order. This interpretation, which has been accepted by the law officers of the Crown, reduces the compulsory powers to insignificance. While some extremists may regret this defect in the machinery of compulsion, we believe, on the whole, that the discovery of it is providential. The country is not ripe for compulsory evening-school attendance, and a premature enforcement of it would prove hurtful to the cause of education in every sphere.

Before resort is had to that final remedy, the Department and local authorities should exhaust the possibilities of the voluntary system. No one can pretend that this has been done.

IRISH.

Two important statements have been made by Mr. Birrell, as Chief Secretary, in the House of Commons bearing on the improvement of secondary education in Ireland. Being asked about the County Council university scholarships, and the action of many of the county councils in making Irish a compulsory subject, he said that this was, in his opinion, contrary to the spirit of the University Act, but that a scheme of scholarships from primary to secondary schools was practically ready, the introduction of which would lead to a reconsideration of the rules for the university scholarships. The second statement was that when he returned to Dublin at the close of the Parliamentary session he was going to tackle the question of the salaries of assistant-masters, and would interview the different bodies concerned. These are two important questions which are both urgent.

THE Department of Agriculture and Technical Instruction has just issued no. 1 of the twelfth volume of its Journal. The number, which is illustrated by numerous photographs, contains some very interesting articles. One of them gives a short history of the science and art institutions in Dublin. There is also an account of the new Royal College of Science building, opened last July by the King. Some of the other articles deal with "The Management of a Cottage Garden," "School Work in Relation to Bodily Health," by Mr. G. Fletcher, "Technical Work in Bangor, co. Down," and "Teaching of Domestic Science in Cottages."

THE Schoolmasters' Association has sent to the Intermediate Board the following resolution in reference to the system of marks counting for prizes and exhibitions awarded on the result of its examinations: "That we would direct the attention of the Board to the fact that, owing to the withdrawal of the special papers, the *main* subjects of each group will now have only the same value as the other two honours, and therefore we would suggest that in determining the exhibitions and prizes in each group the marks obtained by the students in the *main* subjects should be doubled."

At a meeting held in University College, Dublin, the Most Rev. Dr. Walsh, Chancellor of the National University, made an important announcement with regard to the position of law students. Previous to the establishment of the National University, all law students were obliged by the Benchers of the King's Inns to take out one of their years of legal study in Trinity College, Dublin. This existed up to the time of the dissolution of the Royal University and the founding of the National University, but now, by the action of the Benchers, students of law could satisfy the conditions by attending a continuous course by one of the professors in the law school either of Trinity College or of University College, Dublin.

At the annual prize distribution of the Royal Academical Institution, Belfast, Mr. R. T. Martin, the vice-chairman of the Board of Governors, referred to the conditions under which Irish secondary-school teachers work, and stated that the Governors had just succeeded in putting into operation a pension scheme for their teaching staff. The scheme was, so far as he was aware, a pioneer attempt in Ireland

to deal with the question, and the Governors had launched it in the belief that it would be beneficial to the institution and would also be an encouragement and stimulus to the staff. The scheme is on a contributory basis. There have, of course, been pensions given to the retiring teachers in Ireland and in other Irish schools before this; but they have hitherto been spasmodic and uncertain, and it is to be hoped that other schools will follow the example of the Academical Institution in Belfast. We hope to deal with this scheme more fully next month.

MR. JUSTICE BARTON, at the annual prize-giving of the Kingstown Technical School, delivered an address which was mainly devoted to the question of the relation of the technical school and the universities. At present there was little chance for a technical student, even if he was a technical-school teacher, of obtaining a university education, and he had to be satisfied with summer courses or something similar. In Germany and in America things were very different. In Germany there were ten technical universities with 17,000 students, and this was a most powerful instrument for helping and spreading German industries. In America things went still further, especially in the Western States. In Ireland there were four difficulties to be faced, none of them insuperable. The first was that every university would expect a certain standard of general education, and this was a difficulty for the students themselves to overcome. The second was a financial difficulty, which could be met by a system of scholarships. The third difficulty was in the Matriculation examination, which he thought might be somewhat widened and enlarged so as to ease the entrance for a technical student and to give him the benefit of his special knowledge. The fourth difficulty was in the courses and degrees of the university; and here it would be necessary to co-operate with some other institution, such as the Royal College of Science, which was more capable of teaching the practical side of science. Similar arrangements had been made in Manchester, Leeds, and elsewhere in England, and should be possible in Ireland. Mr. T. P. Gill, in commenting on these remarks, said that co-ordination was making steady progress in Ireland in spite of many difficulties, and there was nothing to hinder it if only people did not try to force it too quickly. For example, he thought that very soon university students would be seen handling cattle at Glasnevin as part of their college course for obtaining a degree in agriculture.

WELSH.

THERE is a movement in Wales to get the Welsh Members of Parliament to bring in a Bill to provide for the establishment of a Department of Agriculture for Wales. This Department would be charged with the general duty of promoting in Wales the interests of agriculture, forestry, and other rural industries, also of higher and technical instruction, theoretical and practical, in those subjects. Special duties would be "the making, or causing to be made, or aiding in making," inquiries, experiments, and research in agriculture and allied subjects; the collection of statistics and information, their publication and distribution, and whatever might be judged by the Department important for agriculture, forestry, and the other rural industries of Wales. The Department would be required, further, to take steps to promote and develop agricultural organisation and co-operation in Wales. Fisheries would also be dealt with by the Department. To aid the Department to carry out the objects of the proposed Bill, it is suggested that a General Council of Agriculture

and a Central Board of Agriculture should also be established.

MISS ISABEL CLEGHORN, president of the National Union of Teachers, recently addressed the Breconshire County Teachers' Association on "Elementary Education—Success or Failure," in which she advocated further grants from the National Exchequer to local education authorities, less bookishness, more practical training, and smaller classes. Finally, she urged that the great drawback to our national education is the fact that we do all we can for boys and girls up to fourteen, and then, to a large extent, they are left alone. Education should be continued to eighteen years of age; and one of the greatest failures of our system is that adolescents do not come within the range of systematic educational training.

THE Glamorgan County Association of the National Union of Teachers has recently considered the question of pensions, and at a meeting at Pontardawe has passed the following resolution: "That this meeting, whilst thanking the Chancellor of the Exchequer for his public expression respecting the inadequacy of the pensions paid to teachers, deeply deploras the delay in dealing with the amendment of the Elementary Teachers' Superannuation Act, and strongly urges upon the Government the urgent necessity of making as generous provisions to certificated teachers on their retirement from public service as is afforded to Civil Servants." At the same meeting a protest was made against the "growing practice" of appointing (as was done last year) as teachers in school, out of every three appointments, two uncertificated teachers.

EVIDENCE has been taken before the Royal Commission on Public Records. Mr. Ballinger, librarian of the National Library of Wales, Aberystwyth, said, in evidence, that documents condemned for destruction by the Statutory Committee as valueless had been examined at the Welsh National Library, to which they were presented, and found to be of considerable historical importance. It was desirable that all Welsh or Departmental records of a public nature now in the Principality, and not under the immediate charge of the Master of the Rolls, or under official supervision, should be deposited in the National Library or in the National Museum of Wales. Prof. J. E. Lloyd, of the University College of North Wales, Bangor, said two of the classes of research now going on in Wales were those concerning the early records of Nonconformity in Wales and documents forming the background of Welsh literature. He thought both classes of research would be best done at the National Library at Aberystwyth if the research was to be conducted by Welshmen.

THE Cardiganshire Education Committee, in spite of the decision in the Appeal to the House of Lords in the Swansea case, still defer the payment of head teachers of the non-provided schools at the same rate as those in the Council-provided schools. The committee has abolished the scale, and the applications on behalf of non-provided head-teacher members can only be dealt with as applications for increase of salary. It was proposed that non-provided teachers should be paid on the same scale as other teachers, less the time devoted to sectarian teaching; but this was lost, and it was decided to refer the matter to the Finance Committee unconditionally. Thus the differentiation in rates of payment to head teachers of provided and non-provided schools drags on from year to year, the Cardiganshire authority, apparently, never refusing to put all head teachers on an equality, but never actually doing so.

HISTORICAL CHARTS AND PICTURES.

(1) *Arlen's Reversible Historical and Political Chart.* (Arlen.) 8s., 10s., and 12s. 6d.

(2) *The Scholars' Cartoons.* No. 11. By Alice B. Giles. (Hanfstaengl.) Unframed, 3s.; framed, 8s. 6d.

(3) *Artist's Autolithographs in Colours.* (Asher.) Size, 29½ × 21½ inches. 10s. each.

(1) ARLEN'S ingenious reversible chart contains a vast amount of information useful both to the teacher of political history and to the student of historical politics. Although it is a large chart—4½ × 3½ feet—it is not intended for use in front of a class; it is designed to serve as a handy work of reference and summary of leading facts, and its proper place is on the wall of the room in which the pupils prepare their history lessons. One side of the chart gives in a series of columns a chronological list of the leading events of British history from the coming of the Romans to the present day. For this list Mr. A. Hassall is responsible, and his name is a sufficient guarantee both for the accuracy of the dates and the importance of the events classified under them. For the last two centuries coloured inks, red and blue, indicate the party complexion of the successive ministries. The details of Edward VII.'s life and reign are exceptionally full.

The reverse side of the chart is original in its conception and execution. It is a compendium of Parliamentary history compiled with great diligence and industry by Mr. Charles R. Arlen himself. It gives a list of all the Parliaments that have been summoned from 1215 to the present time, together with the chief landmarks in the progress of Parliamentary government. The chart pays special attention to the period subsequent to the Reform Act of 1832. Once again red and blue are used to indicate Liberal and Conservative ministries respectively, and under each ministry are given details of all the more important laws which have been added to the Statute Book. This side of the chart should be of most service to politicians and lawyers, as well as to teachers of nineteenth-century history. The chart can be procured in three forms. For 8s. it can be had in vellum, with metal rollers for hanging; for 10s. 6d. it can be obtained on very stout cloth-centred paper; for 12s. 6d. a library edition can be procured, printed on linen and folded in a red leather case.

(2) The spirited cartoon no. 11 in the Hanfstaengl series represents Joan of Arc attacking the English on the Bridge of Orleans. It is a beautiful, highly coloured picture crowded with carefully studied and accurately depicted detail of the arms and habiliments of fifteenth-century soldiery. An interesting descriptive leaflet (price 2d.) accompanies the cartoon, and gives full information as to the personality of the actors represented—e.g., Joan of Arc, Jean de Dunois, Richard the Archer, on one side; Richard Beauchamp, Earl of Warwick, and his men on the other side. Any teacher who possesses cartoon and leaflet has in his hands the material for a fascinating and impressive lesson on the French war of Henry VI.'s reign.

Messrs. Asher, having already issued a successful series of German autolithographic pictures, have now commenced the production of a similar series of English views (3). They make their first appeal to English art-lovers with six pictures which represent, respectively, St. Paul's Cathedral, Westminster Abbey, the Houses of Parliament, Tower Bridge, the Thames from Richmond Hill, and Windsor Castle. The peculiarity of the process by which these charming pictures are reproduced is that the originals were transferred to the lithographic stones by the artists themselves, so that the reproductions have many of the

characteristics of original paintings. No delicate effect of line or light is lost, and the result is pleasing in the highest degree. The most successful of the series are the great historic buildings, which are drawn with admirable artistic skill. The Tower Bridge is too ugly to allow a really beautiful picture to be made; while the view of the Thames from Richmond Hill, although it has the charm of fields and water, suffers from the complete absence of any trace of human life.

MORAL INSTRUCTION LESSONS.

- (1) *The Story of Israel and Judah.* By H. J. Chaytor. xii+311 pp. (Blackie.) 5s.
 (2) *The Spiritual Sequence of the Bible.* By John Gamble. ix+120 pp. (Macmillan.) 2s. 6d. net.
 (3) *Early Religious Poetry of Persia.* By J. H. Moulton. 170 pp. (Cambridge University Press.) 1s. net.
 (4) *The Moral Life.* By W. R. Sorley. 147 pp. (Cambridge University Press.) 1s. net.
 (5) *Thessalonians, i., ii. Timothy, and Titus.* By H. W. Fulford. 136 pp. (Cambridge University Press.) 1s. 6d. net.
 (6) *St. Matthew.* By A. S. Walpole. 192 pp. (Oxford University Press.) 1s. 6d.
 (7) *Talks with Children about Themselves.* By Amy B. Barnard. 228 pp. (Cassell.) 3s. 6d. net.
 (8) *Circumstances or Character?* By Clement F. Rogers. 218 pp. (Methuen.) 3s. 6d. net.

THE author of "The Story of Israel and Judah" (1) has written with Prof. Driver's ideal in view: "It ought assuredly to be possible so to teach the historical parts of the Old Testament to those who have reached the age of fifteen or sixteen that, when they enter into manhood, they may have *nothing to unlearn* on the ground of either science or history." Mr. Chaytor's style is crisp and concise, his characterisations are fair and judicial, while his matter is put in an extremely interesting way. He has certainly reached the ideal with which he set out.

Mr. Gamble's book (2) is worthy, though slender. The author's line will be apparent from the following extracts: "Thus these three narratives [the Synoptic Gospels] are not history in our modern sense of that word. They are not chronicles written with the sole object of describing what actually happened: they have been composed with the object of informing and strengthening faith by men who themselves believe, and who see the seeds their Master had planted already grown into trees." "In it [the Fourth Gospel] history is avowedly made subordinate to doctrine."

Dr. Moulton in his book (3) on Persian poetry goes back beyond the times of Firdausi and Háfiz, Nizámi and Omar Khayyám, to a period known only to a handful of European and American scholars. "The oldest and most important parts of it are sermons in metre."

Similarly got up is Dr. Sorley's "The Moral Life" (4), the purpose of which is "to give a popular account of the nature of goodness in human life." A happy task happily performed. An immense amount of moral philosophy is here compressed into a small compass, and in a manner so lucid and attractive as to deserve a large circle of readers.

Mr. Fulford's addition (5) to the Revised Version for schools is a welcome and workmanlike volume. It is packed with textual notes indicative of more than ordinary thought and research, while the introductory chapters and analyses are of the greatest value.

The textual notes to Mr. Walpole's "St. Matthew" (6) are of the most slender kind. The book will be useful

to elementary classes where only occasional comments on the text are desired. Besides an interesting introduction, there are some good maps and illustrations, and an index of exceptional proportions and merit.

Miss Barnard's talks to children (7) are interesting—to grown-up people. They are too exclusively physiological. Only very big children will understand, let alone enjoy, "the cerebrum is irregularly crumpled or convoluted," "a unique historical relic," "the invention of the steam engine that revolutionised the industry of the world," "I shall become short-sighted and astigmatic," and so on. Miss Barnard's "Talks" are really so full of good matter that they are worth drastic translation into Anglo-Saxon; and we commend to her her own style as set forth in the second paragraph of her beautiful chapter "Growing a Soul," where she writes: "Let us think of some of the ways in which we can feed it, and so help it to grow strong, straight and tall," &c.

Mr. Rogers's book (8) will be valued by all who are interested in the organisation of charity. It is a series of studies of social work full of human interest and practical suggestion.

MEMORY WORK IN ART TEACHING.

The Training of the Memory in Art. By Lecoq de Boisbaudran. Translated by L. D. Luard. 181 pp.; illustrated. (Macmillan.) 6s. net.

THAT a considerable amount of attention is being paid in this country to certain phases of drawing from memory was made very evident at the proceedings of the International Drawing Congress held recently in London. It cannot, therefore, be claimed for this collection of essays that they break any particularly new ground; at the same time, it must be immediately conceded that the thorough and systematic treatment of the subject and the logical sequence of the various stages therein give them an educational value far beyond that obtained by the slight, and frequently meretricious, work of the "snapshot" variety which to-day so frequently passes muster as training in memory drawing.

Written between fifty and sixty years ago, when M. Boisbaudran was actively engaged putting his principles into practice, first at the École Royale and later at the École Impériale, the three essays comprising this volume constitute a stirring indictment of the evils of over-centralisation of methods of teaching which were prevalent at the time; and although present-day methods can hardly be said to lay themselves open to criticism on that score (in fact, the pendulum now shows a tendency to swing to the other extreme), yet, such was the wide and liberal-minded view taken by the author, there is a great deal in these essays that the art students and teachers of to-day might take seriously to heart and ponder, with great advantage to themselves and to their work.

The first of the three essays treats of M. Boisbaudran's system of training in memory drawing, the subject being dealt with under the headings of "Memory of Form" and "Memory of Colour." Here the author expounds his scheme, and shows its development, step by step, from the smallest beginnings to the attainment of a degree of proficiency which, judging by the results illustrated, can only be described as marvellous. A system such as this, formulated by an artist-teacher who numbered among his pupils such men as Fantin-Latour, Legros, Lhermitte, Rodin, and Solon, and whose influence was widely felt by, among others, Whistler, is surely one which demands respect and is entitled to our serious consideration.

The second essay, "A Survey of Art Teaching," gives us an enlightening summary of the methods then in vogue, and, in addition, expresses in an inspiring form the ideals and aspirations of an enthusiastic and earnest teacher, the whole being dominated by M. Boisbaudran's guiding principle, that "Art is essentially individual—it is individuality which makes the artist."

The concluding chapters of the book contain the "Letters to a Young Professor," which, despite a certain mid-Victorian flavour in the early stages, are most surprisingly modern in their temperament. The young professor is favoured with a wealth of valuable counsel, forcibly and frankly expressed, on matters which are as vital to-day as they were when the letters were written. The letters are marked by the breadth of outlook and steadfastness of purpose characteristic of a man who was, as his brief biography tells us, tall, with a strong personality; a man of wide culture, and possessed of a gift for teaching amounting to genius.

It was, indeed, a happy chance that led Mr. Luard to the discovery of these long-forgotten papers; and he has placed all who are concerned with art education under a lasting obligation to him for his very able translation.

A spirited introduction from the pen of Mr. Selwyn Image adds largely to the interest of the book; and one can but echo his pious hope that the book may come into the hands, not only of teachers in schools of art, but of teachers too in elementary and secondary schools.

RECENT SCHOOL BOOKS AND APPARATUS.

English.

The Poetry of Life Series: Gray, 112 pp.; *Keats*, 94 pp. 2 vols. By W. H. Hudson. (Harrap.) 10d. each.

The Quest of the Red Cross Knight. By Mrs. F. S. Boas. 124 pp. (Blackie.) 10d.

A new note has been struck by Prof. Hudson. The problem is, for young students, to provide as much history and criticism as is good for them, with a considerable body of text. To put Shakespeare, Virgil, Donne, Shelley, Whitman into a student's hands and give no guidance is a method which succeeds only with the genius; to set three centuries for examination work is bewildering, and leads directly to cram. For what happens? The student buys texts or neglects to buy, and pins his faith on the primer. In the books before us we have for students of sixteen and for children of ten a real help. Gray's life is dealt with, and his poems are quoted in good swaths chronologically, and you see the man as he appears to the critic. It is admirably done, and the "Keats" is as good; but we are not so much in love with the performance as with the method: the method shows a common sense which is generally wanting in the class-room and in private study.

Mrs. Boas does the same for children, though, of course, on independent lines.

But now for our suggestions. We should like a little more criticism of the poems quoted; and, while the bibliography is good enough for the poets, it is insufficient for the men—by this we mean that we should like a guide to the pictures, relics, letters—we speak from the young student's point of view. Moreover, if Prof. Hudson is editing the series—and there is no reason why the series should not run to forty volumes—the books should be full of cross-references, so that comparative work may be possible. But we welcome the books as a distinct step in the common-sense way of treating English literature.

Picture Composition. Three Books. Illustrated. (Blackie.) 6d. each.

The Children's Shakespeare: Macbeth, As You Like It, The Tempest, Midsummer Night's Dream. (Macmillan.) 4d. each.

Herbert Strang's Library: A Book of Golden Deeds, Stories from Grimm, A Wonder Book. 255 pp. each. (Frowde.) 6d. each.

Tales of Famous People. 142 pp. (McDougall's Educational Co.) 6d.

Stories from Bunyan. By E. L. Elias. 144 pp. (Methuen.) 1s. 6d.

The Open Road Library: Page, Esquire, and Knight. By M. F. Lansing. 178 pp. (Ginn.) 1s. 6d.

The Brave Days of Old. 172 pp. (McDougall.) 1s.

Further aids to self-expression are found in the series called "Picture Composition." The idea is capable of indefinite expansion; and, trained in this way, a child might soon be able to describe even the great pictures and know something of their meaning. The bulk of teachers do not yet value pictures in the school, though it is true they ask for them and hang them—and forget.

"The Children's Shakespeare" is more ambitious; but the theory at the bottom of the attempt is right. The plays are scenes connected with a brief prose account of intervening passages, the whole being quite intelligible for the boy of eleven or twelve.

The "Strang Library" is well printed and pocketable, and "Tales of Famous People" is very well illustrated. The retold Bunyan is, we should think, a venture; but there is no doubt of Bunyan's lasting popularity with children. "Page, Esquire, and Knight" is an introduction to chivalry by way of many knightly narratives, and "The Brave Days of Old," profusely pictured, is a collection of many historical stories, some, indeed, quite modern.

History.

Oxford History Readers. Book V., The Tudor Period. By I. L. Plunket. 268 pp. Book VI., The Stuart Period. 255 pp. By J. Owen. (Frowde.) 1s. 6d. each.—Each of these books has readable chapters on the story, followed by appendices, giving a list of the sovereigns, genealogical tables, maps, dates of important events, a bibliography of stories and novels, some poems and prose narratives relating to the periods and questions. They are both plentifully illustrated in colour, in line, and with photographs. The story is well told in both, but Mrs. Owen's book suffers in its ecclesiastical terminology, and her chapter on commerce and colonisation has some astonishing omissions.

In Stewart Times. By E. L. Elias. 260 pp. (Harrap.) 1s. 6d.—This book is intended as a companion volume to "In Tudor Times," which we reviewed a short time ago, but it is not equal to its predecessor. There Miss Elias seemed to be at home. Here she gives us the impression of having read up her subject, and that, to judge from the bibliography she gives us in her preface, not in the best books now available. Whether because of this alone, or also because of the deeper interests of the Stuart period, the book strikes us as superficial. There are passages that seem to miss the mark, and here and there are strange blunders—still, for those who know the period fairly well, these biographical sketches of the monarchs and some of the statesmen, military and religious leaders, and scientific men of those times will prove interesting and profitable. There are several portraits and an index.

The Cambridge Historical Readers. Edited by G. F. Bosworth. (Cambridge University Press.)—Five books, in-

creasing in number of pages from 164 to 306, in price from 1s. to 2s., and decreasing in size of type as they proceed from the "Introductory" (Stories of Greece and Rome) and "Primary" (Stories of Great Men and Women in British History) to "Junior," "Intermediate," and "Senior" reading books in British history, dealing with the whole on the concentric method. The "get-up" is good and pleasing, and the illustrations are good, from the view of the Pitt Press in the twilight on the cover and the coloured frontispiece to the abundance scattered through the text. That text is not always quite accurate history, but in our experience "those who know" cannot write "readers," and the divergences are not serious for those for whom these books are intended. There is no index, even to the largest, but there is a table of contents.

The Study of History in Secondary Schools. 72 pp. (New York: The Macmillan Company.) 1s. net.—They take history teaching in schools seriously in the United States of America, and the American Historical Association there, not content with the report of a committee of seven which it appointed some years ago, has recently appointed another committee of five to revise that report. This booklet is the report of the four members of that committee who have survived. They have collected opinions on the syllabus suggested by the seven from all parts of their country, and present the results of their inquiry. There is evidently much difference of opinion and practice, and the English teacher would profit by reading this report.

Tower History Readers. The Tudor Period. 250 pp. 1s. 6d. The Stuart Period. 282 pp. 1s. 8d. (Pitman.)—Both these books are illustrated with pictures, coloured and other, of various degrees of merit. Each has a summary of events at the end. The volume on the Tudor period consists largely of extracts from contemporary and other authors. The Stuart period has little if any quotations of any length. The consequence is that whereas the former has little to criticise, the latter has many sentences which should have been written otherwise in order to give a correct view of events.

Geography.

England. Bathy-ographical Map. 50 × 42 inches. (W. and A. K. Johnston.) 12s.—This is one of a series designed to enable the teacher readily to point out how physical facts have influenced material development. To this end clearness of colour and accuracy of contour-line have been made salient features; and the latest map falls no whit behind the standard of its predecessors. As it includes all South Scotland so far north as Glasgow and Edinburgh, and a thirty-mile strip of the east coast of Ireland, we think the purchaser gets good value for his money. Tested, too, by actual teaching before a class some thirty strong, the map emerges successfully. The browns, greens, and blues supply the initial *motif* and prepare the veriest dunce for innumerable deductions drawn from highland and lowland, deeps and shallows. We commend the following as good examples. Nine-tenths of the British wheatfields lie in the east of England; the Aire Gap with the upper Ribble and the Eden has determined the Midland route from Leeds to Carlisle, while the continuation of this railway on to Glasgow (G. and S.W.R.) would have fared badly without the Nith valley; the "wind-gaps" in the Chiltern Hills account for easy connection by road, rail, and canal between London and mid-England; the Wye between Monmouth and Chepstow is a transverse river; the "Dover Channel" tunnel is an easier undertaking than that under the "North Channel."

These can all be easily deduced from this map. The railways are marked in red, and, though not particularly conspicuous, are obvious enough to the teacher's eye. The boys or girls can use their own atlases; and the wall-map accordingly assumes its proper function—that of a guide. One slight criticism on a point of detail appears *à propos*. Why call the map "England"? Why not "England and Wales"? In these days of Home Rule and the Celtic fringe it ill becomes a publisher, or anyone else, to ignore a nation.

Mathematics.

The Teaching of Geometry. By D. E. Smith. vi+339 pp. (Ginn.) 5s. 6d.—The author of this most interesting book brings to the discussion of the questions with which it deals not only a wide knowledge of the historical development of geometrical ideas, but also a sympathetic appreciation, evidently founded upon lengthy personal experience, of the difficulties which the teacher encounters. He writes primarily from the point of view of the American teacher, but he shows himself well acquainted with recent educational movements on this side of the Atlantic. It is inevitable that the book should be somewhat controversial. The author defines his own position as being neither ultra-conservative nor revolutionary, but progressive—in sympathy with the natural and gradual evolution of geometry. He "stands for vitalising geometry in every legitimate way; for improving the subject-matter in such manner as not to destroy the pupil's interest; for making it appeal to pupils as strongly as any other subject in the curriculum; but also for the recognition of geometry for geometry's sake, and not for the sake of a fancied utility that hardly exists." On every page one meets with ideas calculated to stimulate thought and discussion. Such a chapter as, for example, that on "The Text-book in Geometry" ought to be studied carefully by anyone who contemplates writing a new text-book. The earlier chapters are mainly historical, while the later enter into a minute discussion of the way in which the subject ought to be taught. This is certainly a book for every teacher's library.

Practical Mathematics and Geometry for Technical Students. By E. L. Bates and F. Charlesworth. Parts I. and II. viii+446 pp. 3s. net. Part III. viii+328 pp. 3s. net. (Batsford.)—This text-book is written to meet the requirements of candidates for the examinations of the Board of Education. The first volume contained what was necessary for the Stage I. examinations in practical mathematics and practical geometry, and now that this examination is to be discontinued and replaced by "Lower Stage" examinations the second volume provides the additional matter which the extended syllabus demands. We have no hesitation in saying that these books are the best of the type which have come under our notice, and that the students who use them will gain much more than a mere rule-of-thumb knowledge of the method of attacking technical problems which involve some mathematics. The diagrams are excellent, the type clear, and there is an abundant supply of examples both worked and for solution by the student.

A Treatise on Hydromechanics. Part I. Hydrostatics. By W. H. Besant and A. S. Ramsey. vi+275 pp. (Bell.) 7s. 6d. net.—Dr. Besant's well-known text-book has reached a seventh edition. The principal improvement is to be found in the chapter on the equilibrium of revolving liquids, which has been partly rewritten, and contains some notice of recent researches. The references to recent memoirs, introduced at various points, will guide the student in his further reading.

Arithmetic for Schools and Colleges. By F. C. Boon. viii+367+55 pp. (Mills and Boon.) 4s., with Answers.—This book embraces practically everything which can be brought under the heading of arithmetic without trenching upon the domain of algebra, although the symbolism of the latter is used to express a few general results connected with the theory of numbers, continued fractions, and mensuration. Comparatively little space is given to theory, the book being practically a collection of examples, some seven thousand in all, it being understood that the teacher will supply the explanations required should the pupil fail to grasp the principles involved after reading the typical worked examples. The examples are of all grades of difficulty, ranging from straightforward, easy exercises to quite stiff conundrums. The book is a mine of excellent material of which the teacher can make use, in whatever way he wishes to teach the subject.

Science and Technology.

General Physics for Students. By E. Edser. 632 pp. (Macmillan.) 7s. 6d.—The excellence of the text-books on heat and on light previously written by Mr. Edser has led us to anticipate a high standard of scientific accuracy and novelty of treatment in any volume for which he may be responsible. In his latest text-book, on general physics, our anticipations are more than fully realised, for it is a work which withstands all criticism, however carefully it may be examined; and it almost creates in the catalogue of scientific literature a place which hitherto has been unoccupied. It might be possible for a student who has ample time and a perfect reference library at his disposal to search out much of the information given; but such conditions seldom prevail, and on almost every page of this volume the majority of students will find subject-matter which is entirely new to them. After an introductory chapter on static and dynamic principles, the more important of the subjects discussed are rotational and simple harmonic motion, the gyrostatic pendulum and spinning top, the general theory of oscillations, gravitation, elasticity, surface tension, the motion of fluids, surface waves in liquids, the flow of liquids, and the molecular structure of gases and fluids. It is impossible to refer to the treatment of any one of these subjects as deserving special comment, for all are distinguished by the same clearness, completeness, and accuracy. Each subject is illustrated with an extensive range of experiments, for the most part simple and often novel; and to each chapter is added a number of questions. These exercises deserve special comment, in that the answers given at the end of the volume are not merely numerical, but in cases of special difficulty the full working is given, and frequently with the aid of a diagram.

In order to meet the conditions attached to important examination syllabuses, the author has endeavoured in all mathematical processes to avoid the use of the calculus. This has been done successfully by an ingenious method, upon which the author deserves congratulation. It is unfortunate that the advanced student of physics is encouraged, or even allowed, to dispense with the calculus; and the author is not to be blamed for a condition which almost compels him to use an unnecessary amount of space in deducing results which otherwise could be obtained far more briefly. The best thanks of all serious students of physics are due to the author for placing at their disposal a volume which is truly a rich mine of information. The publishers also deserve praise for this excellent example of book-production. The splendid series of diagrams, 285 in

number, and many presenting enormous difficulties in draughtsmanship, forms an important feature of the book.

Notes on Practical Physics. By Dr. A. H. Fison. 144 pp. (Arnold.) 3s. 6d.—In this volume the author presents the fruit of his experience in teaching large classes in practical physics. Dr. Fison considers that the student's intelligence is not called fully into operation when a complete description of a proposed experiment is available, but that a more or less brief note upon the subject is all that may be required. He acknowledges that the majority of students will need more aid than this, and that here the function of the demonstrator begins. With all this we agree; but the author occasionally carries the idea to an excess. Thus, the note on the micrometer screw-gauge and the vernier calipers recommends that "the student should retire with the instruments to a quiet corner of the laboratory and worry out the principles of their action for himself." An important feature is the classification of experiments into three groups, according to the degree of accuracy of which the experiment is capable: this is quite valuable to the student who works seriously. The advice and suggestions to students (chapter i.) and the specimens of recorded results (chapter x.) are useful additions. The volume includes experiments in all branches of elementary physics, and it can be well recommended for the use of intermediate classes.

An Elementary Course on Practical Applied Electricity and Magnetism. By D. H. Ogle. 134 pp. (Longmans.) 2s. 6d. net.—In the preface, written by Dr. W. G. Rhodes, it is stated that in teaching elementary classes in electrical engineering the writer and the author have felt the need of a book which would combine practical instructions with the necessary theoretical explanations. The volume is therefore a labour-saving device, intended to assist the teacher by allowing a student to commence an experiment with some previous knowledge of the theory involved. Part i. includes thirteen elementary experiments in magnetism, and part ii. about fifty experiments in current electricity, the last twelve of which refer to the calibration of voltmeters and wattmeters, and to simple measurements with dynamos and motors. Expt. 32 cannot be described as a *proof* of Ohm's law, since the principle of the voltmeter used assumes the truth of the law. The experiment would not be open to this objection if a voltmeter of the electrostatic type were used. Apart from this minor criticism, the selection of experiments is very suitable for the purpose intended. The diagrams are very simple, but sufficient.

Art.

Simple Lessons in Colour. By H. A. Rankin. 158 pp.; illustrated. (Pitman.) 4s. net.—The latitude allowed of late years in the choice of subjects for the drawing lesson has led to a much greater freedom in the use of the colour-box in elementary and secondary schools, and the need for guidance with regard to material and methods has been felt widely. To the teacher in those schools where no expert assistance is available, this book will be of very tangible assistance. It deals in a lucid and readable manner with the difficulties likely to be encountered, and gives much useful advice, based on modern methods of water-colour manipulation. The numerous illustrations, though hampered by the restrictions inevitable to colour process reproductions, are convincing, and open up a wide field of subjects for teachers who are working on these lines. On the whole, this is a timely and helpful book.

Modelling in Cardboard, Paper, and Leatherette. By C. T. Hammond. 255 pp.; illustrated. (Blackie.) 5s. net.—Two outstanding features which distinguish this book on the manipulation of cardboard and kindred materials from its numerous predecessors are the wide range of subjects covered by the exercises and the clear and concise character of the illustrations, which gain largely in legibility through the judicious use of colour. The concluding chapter, on the measurement of the areas of plane figures and of the volume of solids, is a useful innovation admirably calculated to pave the way, by agreeable and imperceptible steps, to the study of mensuration. Some useful suggestions as to methods and materials, obviously the outcome of a wide teaching experience, lend a practical value to what is undoubtedly the best book we have yet come across on this increasingly popular subject.

Miscellaneous.

Children and the Law. By W. H. S. Garnett. With an Introduction by the Rt. Hon. Walter Runciman, M.P. (Murray.) 2s. 6d. net.—A concise handbook of the law relating to children is a great convenience to those engaged in work among the young, as well as to those who wish to understand the laws they desire to see amended. Such a handbook, made all the more necessary by recent Acts of Parliament and legal decisions, has been written by Mr. Garnett, and we think it well deserves the words of commendation bestowed upon it by Mr. Runciman. The latter naturally disclaims responsibility for the author's interpretations of the law, but is so far impressed with the truth or shrewdness of his renderings as to "commend his compact little book to those who have to deal with their own or other people's children." The book is well arranged, and, notwithstanding that the number of Statutes and cases cited looks at first somewhat alarming to the lay eye, it is clearly and interestingly written.

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.

A Missing Chapter in Arithmetic.

THE letter in the November number from my old master, Mr. H. G. Willis, asking for information relative to degrees of error and accuracy as justified by the data, came before me on the day on which I had given my usual lesson on this subject. The principles which I adopt are possibly generally applicable in secondary schools, and may bear scrutiny.

Let A be a measured quantity the accuracy of which is expressed in the form $A \pm \frac{1}{2}$. Then, omitting errors of the second degree, the values for *n*th powers and *n*th roots are obtained as follows:

- (i) $(A \pm \frac{1}{2})^n = A^n \left(1 \pm \frac{1}{2A}\right)^n = A^n \left(1 \pm \frac{n}{2A}\right)$
- (ii) $(A \pm \frac{1}{2})^{\frac{1}{n}} = A^{\frac{1}{n}} \left(1 \pm \frac{1}{2A}\right)^{\frac{1}{n}} = A^{\frac{1}{n}} \left(1 \pm \frac{1}{2nA}\right)$;

e.g., if 19.2 sq. cm. be a measured area, then the length of side of a square of equal area is

$$\sqrt{19.2} \left(1 \pm \frac{1}{76.8}\right) = 4.38(1 \pm 0.013);$$

$$= 4.38 \pm 0.056 = \text{between } 4.32 \text{ or } 4.44.$$

If A and B be similar measured quantities, then the product of A and B

$$= AB \left(1 \pm \frac{1}{2A}\right) \left(1 \pm \frac{1}{2B}\right)$$

$$= AB \left(1 \pm \frac{1}{2A} \pm \frac{1}{2B}\right);$$

e.g., $= 78.3 \times 0.00954 = \frac{783 \times 954}{10^6} \left(1 \pm \frac{1}{1566} \pm \frac{1}{1908}\right)$

$$= 0.746982(1 \pm 0.0006 \pm 0.0005)$$

$$= 0.746982(1 \pm 0.001)$$

$$= 0.74698 \pm 0.00747$$

$$= \text{between } 0.740 \text{ and } 0.754.$$

Similarly the quotient of A and B

$$= A/B \times \left(1 \pm \frac{1}{2A}\right)$$

$$= A/B \left(1 \pm \frac{1}{2A} \pm \frac{1}{2B}\right);$$

e.g., $0.075 \div 25.47 = \frac{75}{2547} \times 10 \left(1 \pm \frac{1}{150} \pm \frac{1}{5094}\right)$

$$= \frac{75}{2547} \times 10(1 \pm 0.006 \pm 0.00002)$$

$$= 0.00294(1 \pm 0.006)$$

$$= 0.00294 \pm 0.00017$$

$$= \text{between } 0.00311 \text{ and } 0.00277.$$

Similarly, if three quantities be taken, the possible arrangements of quotients and products will always yield a result to be multiplied by

$$\left(1 \pm \frac{1}{2A} \pm \frac{1}{2B} \pm \frac{1}{2C}\right);$$

e.g., $\frac{8.76 \times 3.74}{2.83} = 11.58 \text{ (approx.)}$,

i.e., if these be measured quantities the result

$$= 11.58 \left(1 \pm \frac{1}{1756} \pm \frac{1}{748} \pm \frac{1}{566}\right)$$

$$= 11.58(1 \pm 0.0006 \pm 0.0013 \pm 0.0018)$$

$$= 11.58(1 \pm 0.0037)$$

$$= 11.58 \pm 0.043$$

$$= \text{between } 11.54 \text{ and } 11.62.$$

Generalising these results, we reach the conclusion that if measured quantities are accurate to *n* significant figures, results of multiplication, division, involution, or evolution, or of combinations of these, cannot be accurate to more than (*n*-1) significant figures, and in some cases even the result is accurate only to (*n*-2) figures. Further, the calculation may be made to yield *n* significant figures; and, if desired, the limits may be found from the formulæ above. Summing up, the result X of the equation

$$X = \frac{A \times \sqrt[n]{B \times C^n}}{D}$$

has limits expressed by

$$X \left(1 \pm \frac{1}{2A} \pm \frac{1}{2nB} \pm \frac{n}{2C} \pm \frac{1}{2D}\right).$$

Speed of work is obtained by the mental approximations in decimals for the fractions $\frac{1}{2A}$, &c.

B. C. WALLIS.

The County Secondary School, Holloway, N.

IN finding the limits of an approximation, I have little doubt that the method advocated by Mr. Wallis would be adopted by all teachers and students, for I am not aware that any text-book gives any other. In my letter I men-

tioned it, perhaps too briefly, and called it "another good method." Both this and, in the case of unalgebraical students, the double guillotine method seem to me to furnish a satisfactory and complete solution.

My objects in writing were (1) to direct attention to an important type of question omitted in many, if not in most, arithmetics; (2) to make public the two little-known, if not novel, guillotine methods; (3) to ascertain if anyone knew of more practically simple methods, especially in the case of limitless approximation.

Another method of rough approximation is to put a star (*) after each approximate number, and then to perform the operation, and finally reject any column containing a star; thus:

78·3*	Quotient	0·00291*
0·00954*	Divisor	25·47*
7047*	Dividend	0·075*
3915*		5094*
3132*		25***
****		22923*
0·7470*		3****
		2547*

This, which we may call the *Star Method*, was strongly recommended to me, but, even when modified by the omission of final columns, does not seem so satisfactory in more complicated questions as the guillotine method.

In the division form above the star method gives three significant figures; the guillotine method gives four, 0·002904; the double guillotine gives 0·0029045 ± 0·0000020.

I should like to see stars generally used for doubtful figures; thus the number 370** is free from the ambiguity of 37,000.

Two gross errors have crept into the calculations of my former letter, but do not affect the principles.

I thank Mr. Wallis for helping to direct attention to the matters in question. H. G. WILLIS.

The Grammar School, Manchester.

An Interesting Problem.

"AN INTERESTING PROBLEM" was given in THE SCHOOL WORLD (July, 1911) by Mr. Crawford, and my attention has been directed to the inaccuracy of his solution by some of the pupils of my class. The problem is: "If six people sit in a ring, how many ways are there of arranging them so that a particular pair never sit together?"

Mr. Crawford states that the usual result is 72, but that the correct solution is 60, though the fallacy in the former method of solving is hard to detect. In my opinion the correct answer is 72. The problem simply reduces to this: In how many ways may six letters (A to F) be arranged in a line, provided A always comes first, and F occurs neither in the second nor the last place? Result, $5 \times 2 \times 4$.

Or it may be solved thus: If A is fixed at any point on a circle, F has three places out of the six to choose from, since F may not be placed either to the right or to the left of A. The other four may get their places in 4 ways. Result, as before, is 3×4 , or 72. Of course, if clockwise and counter-clockwise order be not distinguished, the result will be 36. J. M'GRATH.

Rockwell College, Cashel.

MR. CRAWFORD'S problem appears to contain a deeper pitfall than he himself suspected. The fate of Sir Thomas More, who, whilst rebuking Tyndal for the erroneous use of "No" and "Nay," misstated his own rule, haunts me as a warning against hasty criticism. Still, I venture to

affirm that the "real result" is 72 after all, and not 60. Half a dozen different proofs (each giving the same result as that which Mr. Crawford rejected) are appended. If only Mr. Crawford had explained how he obtained the number 60 it might have been possible to "elucidate the fallacy." But perhaps my sixth solution reveals the trap. At any rate, there can be no doubt that the general formula $\frac{n-1}{2} - 2 \times \frac{n-2}{2}$ holds for any value of n greater than 2, giving 12 ways for 5 persons, 2 ways for 4 persons, and none for 3 persons. R. WYKE BAYLISS.

61, Blenheim Park Road, Croydon.

(1) Five persons, including B, can sit in a circle in 4 ways; A can then find 3 suitable places (i.e., not next to his enemy B), making $4 \times 3 = 72$ ways.

(2) If A and B take their seats with 1, 2, or 3 vacant chairs on the right of A (left of B), in each case 4 more persons can sit down in 4 ways, making $3 \times 4 = 72$ ways.

(3) The 4 friendly persons can sit in a circle in 3 ways. Then A can sit in 4 places; and afterwards B can find 3 places which are not next to A, making $3 \times 4 \times 3 = 72$ ways.

(4) A can take one of the 6 indistinguishable seats in 1 way. B can then sit down in 3 places. The remaining four can take their places (one at a time) in 4, 3, 2, 1 ways respectively. Total = $1 \times 3 \times 4 \times 3 \times 2 \times 1 = 72$ ways.

(5) Six can sit in a row in 6 ways. But in 2×5 of these A and B are together. Thus they are apart in $6 - 2 \times 5$ ways. But in 2×4 of these A and B sit at the extremities, and would come together on forming a circle. We thus have $6 - 2 \times 5 - 2 \times 4$ rows to form into a circle. This number must be divided by 6 if the seats are indistinguishable. We thus obtain $\frac{1}{6}(6 - 2 \times 5 - 2 \times 4) = 72$ ways.

(6) By mere counting we see that the number of ways for five persons (instead of six) is 12. Now, for every one of these ways a sixth person can take his seat in 5 different places, making $5 \times 12 = 60$ ways. But in addition to these there are $2 \times 3 = 12$ ways in which the five sit down, so that A and B are at first together, and then afterwards the sixth person takes his place between the two enemies. Total = $60 + 12 = 72$ ways.

THE problem in permutations to which I directed attention seems to have excited some interest, especially as my critics detected a mistake. I plead guilty to that, so shall do no more than explain how it arose and restate the matter as clearly as I can. The fact still remains that a nice little trap lurks in such questions. I had two results worked out, for 6 people in a ring and for 5 in a ring. In copying my notes I used answers appropriate to 5 with the problem which was actually set for 6. Hence the hue and cry!

Now to take the problem for the lower number: "In how many ways can 5 people sit in a ring if two particular people, A and B, are not to sit together?" If we postulate that all places are indistinguishable, we can say:

(Method 1) Unrestricted, the number of ways is 4 . Those in which A, B or B, A sit together is 2×3 . Number wanted is $4 - 2 \times 3 = 2$.

(Method 2) Put A anywhere (1 way); his two neighbours can be picked and placed in $3P_2$ ways, and the other two arranged in 2 ways. Total: $1 \times 3P_2 \times 2 = 12$.

And the answers agree.

But if we postulate that the places are distinguishable, we have:

(Method 1) $5 - 2 \times 4 = 72$.

(Method 2) $5 \times 3P_2 \times 2 = 60$.

Hence in the former case we can safely use either method, and in the latter we cannot. Method 2 is clearly always trustworthy, and method 1 occasionally betrays us. It is a good exercise to point out why. To sum up in a general formula, if n be the number of people, the solutions are :

For all places regarded as alike :

$$\frac{n-1-2|n-2}{1 \times (n-2P_2)|n-3} \text{ by Method 1,}$$

and $\frac{n-2|n-1}{n-3} \text{ ,, 2,}$

which agree in giving an answer $(n-3)|n-2$.

But for all places regarded as distinguishable the methods give :

$$1. \frac{n-2|n-1}{n-3} = (n-1)(n-2)|n-3;$$

$$2. \frac{n(n-2P_2)|n-3}{n-3} = n(n-2)(n-3)|n-3,$$

of which the first is too big. G. E. CRAWFORD.

Nature-study and the Relation between Museums and Schools.

FOR some time it has been clear that there is a growing interest in nature-study as a subject in itself. It impels from its mere interest. And it is now recognised that it is more than a subject, and an *extra* subject. It is a training in *method*. Hence it is of exceptional value to the trainer of intellect.

Museums, moreover, help to illustrate the abstract ideas that are put before the mind as facts by means of concrete examples. And it is conceded that the concrete example is far more instructive, museums laying themselves out for the display of the best concrete examples of specimens in most fields. Museums, in fact, are not what they used to be—mere storehouses of rubbish. For they are now made by the more intelligent curators the means of studying abstract principles by examination of concrete examples; and since the application of the examples to those principles is so important, so museums aim at co-ordinating material according to a certain well-defined plan. In other words, the museum affords in its specimens the illustrations of a text-book for which the schools afford the text.

So a museum is part of a system of education by which an individual can pass from the elementary school by stages to the university, and be eligible for the highest posts in life. As accessory helps there are art schools, technical schools, evening schools, and, as dealt with here, the museum and art gallery. So the school should lead up to these other aids to growth of knowledge and capacity to understand, and especial use be made of those which afford illustrations of written or oral work.

But—and this is our point here—this interconnection has not been dwelt upon, nor have museums been used as they should in the past. The tardy recognition of their value is perhaps due to the heads of museums themselves or the policy of their committees. But to-day each curator has a scheme, and many definitely lay themselves out to help educational work. We therefore here direct attention to the need for co-operation between the school and the museum. In the interest of wild life, it is indeed important that museums should (following out their primary function) create a monopoly in specimens in each district, and so prevent the widespread waste of material needed for collecting for every school (or individual in many cases) in the county.

Having stated the question generally, and in so doing relied on practical experience in this direction, it is necessary to allude to some of the hindrances that are liable to crop up locally, for these do undoubtedly exist. First of all, it is necessary that the value and importance of

nature-study, both as a subject and a method, for training observational powers, be universally recognised. This is not so at present, though many and hopeful exceptions occur in every district. Nature-study lecturers in each district, if appointed, would help in this direction. There is scope for the teaching of it. Few teachers take it up. Thus in one centre 11 out of 150 teachers took the trouble to learn the subject when offered facilities.

Now there is a growing desire for nature knowledge on the part of the young. And if such a healthy appetite exists it should be satisfied, for learning, except as a means for rising in life, is irksome to many of the poorer children to-day, due, perhaps, to their poor nourishment and bad environment. The use made of museums during the last ten years proves this desire. And here at Leicester we have surely but quietly been working to co-operate without any spontaneous appeal from the schools as a whole.

But if museums will co-operate, then this is in itself a hopeful sign, and likely to promote progress in this direction, as, indeed, locally it has, many teachers having gone to great trouble to teach themselves and *then* their pupils. It is clear that a dislike for changing the rigid, and now old-fashioned, science syllabus, which is not suited to modern development of mind powers, has been responsible for the lack of interest in nature-study in some cases. Teachers have been bound down by them, and have been afraid to strike out on new and better lines.

One great hindrance to present-day efficiency in teaching in any of the elementary schools lies in the number of pupils (often sixty) in a class. When asked how logically any pupil could have more than *one minute's individual* attention in an hour there can be no answer from those who impose such bondage upon pupil and teacher alike.

To make use of museums properly there should be a yearly scheme drawn up as to how many visits should be paid to a museum, and what part of it be used, in accordance with the syllabus of school work. In this connection one can make no better suggestion than that school managers ask museums to draw up their programme in so far as the museum is concerned or any teaching it may give to teachers on this head. Indeed, this is the main difficulty; schools will not come and ask for help.

Museums can, moreover, give assistance in lending small circulating collections of approved scope. They can also arrange and direct the field work done by schools, as being best able to point out the special features of the district in the sphere of natural science, since for the acquisition and description of local specimens this is a *sine qua non* in the aims of a living museum.

Teachers run the risk of losing what benefit accrues from visits to museums by want of direction and presenting too much at once for the pupil's assimilation. For a museum is a mosaic of material. Much stress ought to be laid upon the value of exhibits and the study of current life in a museum, such as wild-flower tables, vivaria, and aquaria. These are now generally provided. The teachers, again, can profit by using the museum's special scientific and up-to-date library, if, indeed, they do not avail themselves of offers of lectures given by the museum staff.

One feature is especially important, and that is the possibility of definitely directing the pupils' energy into some special channel, and utilising that energy by a co-operation between museums and schools in collecting, and even preparing material, or training boys to do certain skilled work, and so on. In this work importance should be attached to forming school gardens, laboratories,

making cultures, and so on. If this is to be done thoroughly and well, however, there must be both unanimity and unity in the great work of educating school managers and others in authority as to the need for this revolution in school work, and the benefits to be derived from an active co-operation between museums and schools. It is to make this appeal that these remarks have been written, in the hope that the need will be recognised.

Leicester Museum.

A. R. HORWOOD.

A Geographical "Holiday Task."

HAVING charge of the geography teaching in a school where the facilities for outdoor practical work are naturally somewhat limited, I decided to endeavour to supplement this side of the work by taking advantage of the fact that many of our boys spend their holidays in the country, among the hills, or by the sea. In the hope that it may be of interest to teachers similarly situated, I will briefly outline the details of the experiment tried with success during last summer holidays.

In the last week of the summer term a list of questions was given to each boy, who was requested to endeavour to answer as many of them as possible in relation to any district he might visit during the holidays. The great interest taken in the holiday task by a large number of the boys was probably due to the fact that it was quite optional. The questions were of the following types; further questions will, of course, suggest themselves to individual teachers:

I. *Situation of the Holiday Resort.*

In what county is it? How far from London? Is it inland or by the sea? How did you reach it? How long did the journey take?

II. *The Journey.*

If by train: By what railway did you travel? Through what counties or large towns? Did you notice any interesting buildings *en route*? Were there any tunnels, and, if so, where? What sort of rocks were exposed in the cuttings? What was the appearance of the country passed through?

If by boat: By what line of boats? What places passed *en route*? Were you ever out of sight of land? What was the appearance of shore or coast? What lighthouses did you pass? What other kinds of vessels did you see?

III. *Physical Features of the Holiday Resort.*

Hills and Mountains: Was the district flat or hilly? What is the name of the local hills? Are they rugged or rounded? Of what rocks are they built? Bring specimens if possible. What grows on the hills? What is the greatest height of the hills?

Rivers: Is the place on or near a river? Name. Where does the river rise and enter the sea? How wide is it? How deep? Is it fresh or salt? Is it tidal? What difference is there between high and low water? How often is it "high tide"? Is the river navigable for boats, barges, or ships? Is it swift or slow-flowing? Does it wind much? What is the character of its banks? Of what are they made?

Lakes: Are there any lakes near? Of what size and depth? Are they fresh or salt? Whence does the water come, and where does it go? Is any use made of the lakes?

The Coast and Sea: Is it a high or low coast? How high are the cliffs? Of what are the cliffs made? Bring specimens. Is the beach rocky, pebbly, or sandy? Does it consist of similar material to the cliffs? Does the coast appear to be wearing away? Are there any caves? How often is there a high tide? Is it at the same time each

day, or how does it vary? Were there any very high tides? On what date? In what direction does the town face over the sea? Note position of sun at midday. Do many ships pass the town? What kind of ships? Do they pass close in or far out?

IV. *Atmosphere, Weather, &c.*

From which direction did the wind blow most often? On what days was there heavy rain? From which direction was the wind then? What different kinds of clouds did you observe? Were there any thunderstorms? When? On what date did you notice new moon, half-moon, full moon? At what time and in what position in the sky?

V. *Industries of the Neighbourhood.*

Are there any farms near? What animals are kept? What crops in the fields? What sort of soil? Are there any mines or quarries? Get mineral specimens if possible. Are there any factories? What is made there? Is fishing carried on? How? If there are docks, notice what the ships load and unload. Whence do they come, and where do they go? Is there a natural harbour? Can you find out the population of the town? What do most of the people work at?

VI. *Communications.*

What main roads, railways, canals, or lines of steamships enter the place? Where do they go? What is the nature of the traffic carried on?

As may be expected, the answers received were many and various, the style and accuracy varying with the age, aptitude, and individuality of the boys. Some wrote essays embodying the various points raised in the questions; others made a list of short answers to the questions seriatim on their return from the holidays; while some brought notebooks in which they had entered up the questions, leaving spaces for the answers, which they had jotted down from time to time upon observation.

In several cases the answers were supplemented by sketch-maps of rambles taken, and a few boys brought back photographs they had made of cliffs, quarries, &c.

The least successful questions were those dealing with the phases of the moon and observation of the tides, the accuracy of the observations scarcely allowing of any deductions to be made; and the fine weather of the past summer seems to have been so general that no striking differences of rainfall and sunshine made themselves apparent.

The questions appealing to the boys' natural collecting instinct were well taken up, and as a result we now have at school specimens of quartz and slate from Wales; granite from Cornwall and Jersey; limestone from Portland; chalk from the Isle of Wight, Beachy Head, Folkestone, and Flamborough Head; New Red Sandstone from Cheshire; Carboniferous limestone and a small stalactite from the Wye Valley; our old familiar London Clay from the cliffs of the Isle of Sheppey; and gravels from the foot of the Chilterns in Hertfordshire. Even those who journeyed no further afield than Hampstead Heath brought back specimens of Bagshot Sand; and the various specimens of furnace slag brought from a heap of road metal in the Black Country, under the impression that they were "rocks," were by no means without value.

These specimens have been, and will continue to be, of great use in subsequent lessons, their value being increased by the fact that they have been brought from the places mentioned by boys known to the class.

Then, again, each boy who worked through the questions has acquired at least a few first-hand facts which can be called up to illustrate and compare with other points mentioned in class; and even if the boy who took twenty-four hours to get from London to Llandudno, owing to

the railway strike, may have a false notion of the speed of railway trains, he may still have learned a fact of no little economic importance.

C. B. THURSTON.

Kilburn Grammar School, N.W.

The Time-table: a Suggestion.

DURING the last month of the Christmas term the problem of games, whether voluntary or compulsory, in secondary day schools becomes very serious. The attempt to start any game after afternoon school becomes futile for obvious reasons. In this respect we may well envy our boarding-school brethren, who can so readily accommodate their time-table to the exigencies of daylight. This year, feeling the problem to be an acute one from the point of view of the mental and moral welfare of the children and the capacity for work, I have introduced the experiment of compulsory games for all from twelve to one. It is true that this represents a loss of four important lessons per week for the members of the upper half of the school; but two of these lessons are made up by the pupils voluntarily remaining on at school from 4.15 to 5 on two afternoons a week, and the remaining two by a little manipulation are substituted, for the time being, for two relatively unimportant lessons. Of course there may always be individual pupils who, for reasons of distance, may not be able to remain after 4.15; but any intellectual loss to these pupils is more than compensated for by the immense advantages on every ground to the majority of the school of healthy physical exercise in the open air during the best hour of the day. I merely throw this out as a suggestion, in case it may be of any value to any other day schools faced with the same difficulty and working under the same conditions.

HEADMASTER.

Experiment to illustrate the Law of Diffusion.

A GLASS tube about 8 inches long has one end closed with a plug of plaster of Paris (*a*) about half an inch long. The plug *a* must be perfectly dry. A rubber stopper (*b*) is hollowed out to take the tube, as shown in the diagram. With the stopper in position, the tube is filled with hydrogen by upward displacement, and then placed in *c* with the end *d* just under water. The stopper is removed, and as the water rises in the tube the tube is lowered, taking care that the water in the tube is slightly higher than the water outside; otherwise the hydrogen is forced out under pressure.

When the water has ceased rising mark the level of the water (*e*).

The rate of diffusion of hydrogen compared with that of air evidently = $\frac{ad}{ae}$.

W. G. MARTIN.

The Grammar School, Hexham.

"Leading Movements in Modern History."

In the review of my book, "A Synopsis of the Leading Movements in Modern History," appearing in your October, 1911, issue, your reviewer stated that the matter was almost entirely English history, thus conveying the impression that the title was misleading. The title was chosen after very careful consideration, and the inclusion of such foreign movements as the Renaissance, the French Revolution, &c., seems to justify the choice.

Your reviewer also took exception to the arrangement, stating that the revolt of the American colonies has been treated twice over, and that the reigns of George I. and George II. have been omitted. The American Revolution was treated as a movement in itself; but a certain aspect of it was dealt with in connection with the development of the colonies in order to make that development continuous. The reigns of George I. and George II. have been briefly dealt with on p. 48. As the chief aspects of them are economic rather than constitutional, fuller treatment was undesirable.

As the general arrangement of the book is somewhat novel, permit me to add that my chief aim was to give, in broad outline, some idea of the general trend of modern history. This can only be done by the elimination of masses of facts; and such a summary process requires some justification. It is to be found in the words of Macaulay: "Facts are the merest dross of history. It is from the abstract truth which interpenetrates them, and lies latent among them, like gold in the ore, that the mass derives its value."

If my book, therefore, enables the student to obtain the gold rather than the ore its object has been achieved; and its brevity may be justified on the grounds that "il ne faut pas toujours tellement épuiser un sujet qu'on ne laisse rien à faire au lecteur. Il ne s'agit pas de faire lire, mais de faire penser."

F. R. A. JARVIS.

Mr. JARVIS gives some nine or ten of his first eighteen pages to the European aspect of the Renaissance, the Reformation, and the Counter-Reformation. He does not deal with non-British history again until p. 56, when he gives three pages to the French Revolution. Thus twelve or thirteen pages out of 116 contain his treatment of non-British history. Much of this is what is common to all text-books on British history, and, indeed, is necessary to its being understood. The reigns of George I. and George II. were full of international history, and there were at least half-a-dozen constitutional crises in that period. Yet Mr. Jarvis dismisses it in eleven lines on p. 48.

THE REVIEWER.

The School World.

A Monthly Magazine of Educational Work and Progress.

EDITORIAL AND PUBLISHING OFFICES,

ST. MARTIN'S STREET, LONDON, W.C.

Articles contributed to "The School World" are copyright and must not be reproduced without the permission of the Editors.

Contributions and General Correspondence should be sent to the Editors.

Business Letters and Advertisements should be addressed to the Publishers.

THE SCHOOL WORLD is published on the first of each month. The price of a single copy is 6d. Annual subscription, including postage, 7s. 6d.

The Editors will be glad to consider suitable articles, which, if not accepted, will be returned when the postage is prepaid.

All contributions must be accompanied by the name and address of the author, though not necessarily for publication.

The School World

A Monthly Magazine of Educational Work and Progress.

NO. 158.

FEBRUARY, 1912.

SIXPENCE.

THE REPORT OF THE CONSULTATIVE COMMITTEE ON EXAMINATIONS IN SECONDARY SCHOOLS.

THIS report is of capital importance. As a picture complete in detail of the examination system as it exists in secondary education to-day there is nothing that will stand beside it. Its comprehensive diagnosis of the evils that system entails upon the schools will be quoted whenever teachers or administrators meet to discuss the subject. Teachers especially are placed under a debt of obligation to the members of the consultative committee for the patient thoroughness with which they have explored the sources of present discontent with external examinations. To the constructive side of the report equal care has been devoted. The committee makes no claim to have found a solution for all the difficulties; indeed, it limits itself, in terms, to the statement of principles, leaving to others the gradual working out of a practical scheme. Yet, although there are gaps, the resolution with which the committee has addressed itself to the application in detail of certain of these principles is very striking. The report will be a landmark in the history of the development of secondary education in England, and the starting point of many fresh experiments in examinations.

The crux of the problem is the external examination, and to external examinations taken during the school life or at its close the committee has in the main confined itself. In a memorandum of some 200 pages every external examination of any importance is described—the "locals," the examinations for entrance to the Civil, Military, and Naval Services, the Professional Preliminary examinations, Special Subject examinations, and Scholarship examinations of every grade are here reviewed—their requirements, their age limits, and the number of their candidates duly set out. Another 200 pages contain the evidence of 40 witnesses—representatives of examining bodies, officials, both central and local, inspectors, teachers, and doctors, both men and women. By a welcome innovation one is not left to pick out the grain from thousands of questions and answers, the evidence of each witness being pre-

sented in a well-arranged memorandum. In more than one passage in the report the close connection of the examinations with social and economic conditions is recognised, but it is a pity that no evidence was taken from representative business men and others whose experience enables them to discuss that aspect of the question.

"The real life of education," says the committee, "lies in the ability and character of the teachers and in the spirit of the schools, not in the machinery for their supervision or in arrangements for testing their result." Education begins and ends with the contact of teacher and pupil. How is that relation influenced by examinations as we know them? A hundred closely packed pages will not boil down to a paragraph, but at bottom it comes to this—the teacher's initiative suffers always, and is sometimes destroyed. The examinations dwarf his aims to their own narrow room; they impose on him a set of values which are not his own, which, indeed, he knows to be false, for they take no count of a whole range of activities on which he expends much thoughtful care. They even prevent him from making his own way through his subject as his interest or desire for experiment, or the needs of his pupil, may suggest. When he ought to be afloat on a full tide he is gingerly treading a crazy plank way over the mud flats. Why, then, should the teacher bear these ills? Because, in words the committee quotes from Thorold Rogers, he must compete "for the custom of persons singularly incapable to form an accurate judgment about the worth of the commodity" he offers, for whom, therefore, the number of certificates his school obtains is a standard of value, simple and intelligible. "It is the pressure of economic rivalry which gives its sting to competitive examinations for the pupil," the committee tells us; in external examinations the same sting lurks for the master.

The remedy which the committee proposes and expounds in 40 pages depends in essence upon two fundamental changes. The examinations are to be reduced in number and unified, while the methods of conducting them and of assessing their results are to be radically altered. Starting with the broad postulate that up to sixteen years of age education should be general, the com-

mittee suggests an examination admission to which is to be limited to pupils who have been for three years since the age of twelve in secondary schools recognised as efficient, and have reached a class the average age of which is not under sixteen. The examination is to be in all subjects of the curriculum studied during the previous two years, and whole classes, not picked students, are to be submitted to it. The standard is to be that of the average pupil at sixteen years of age. No other examination is to be allowed except one which may be taken at eighteen or nineteen, in which scope should be given for specialisation. To gain a certificate a candidate should be required to reach the passing standard in certain principal subjects and to obtain a certain aggregate of marks. There is to be no order of merit, but it is left an open question whether distinctions may not be given in individual subjects. This examination is to be accepted as the preliminary for all professions, and provision is to be made for the communication of the marks obtained in it, and also in the higher examinations, to universities, local authorities, and other bodies who are willing to use it for the award of scholarships and bursaries. The certificate is to be called the secondary school certificate, and is to be countersigned by the Board of Education.

According to the latest statistics, 63 per cent. of the boys who leave the grant-earning secondary schools after reaching twelve years of age are under sixteen at the time of leaving, and 47 per cent. of the girls, while in 86 per cent. and 79 per cent. of the schools for boys and girls respectively the average school life does not exceed three years. The institution of the secondary school certificate is expected to lead to an increase in this average school life, but to meet the needs of those who go out into business before completing the course for the certificate, it is suggested that a testamur be instituted, based upon the internal examinations and the school records. This will be granted to pupils who have reached a standard not more than a year behind that of the certificate after continuous education between the years of eleven and fifteen at recognised secondary schools, or at schools accepted for the purpose as being of a secondary type. From the wording of the report it would seem that attendance at a purely elementary school might count, at least during the year between the eleventh and twelfth birthdays, but the point is not quite clear.

The responsibility of deciding that the pupil has reached the standard required and of approving the alternative schools is to rest on H.M. inspector. There is also a provision for the admission of external candidates to the secondary school certificate examination to meet the case of those who have reached the standard by other than the normal course, but their certificate will be distinguishable from the secondary school certificate. It is suggested that this certificate should be accepted by public authorities and professional bodies as on a level with the secondary school certificate. The reason for the suggestion

is sound. It will not do in this country to make the secondary school certificate the "strait gate" to the professions and the universities which the Abiturienten Examen is in Germany. It is to be feared none the less that in proportion as value is attached to the three years' work in the secondary school the external candidates' certificate will rank below the secondary school certificate proper.

The cardinal principle in the modified method proposed for the conduct of the examinations is the combination of inspection with examination. All schools submitting candidates are to be regularly inspected. The inspectors or interview examiners will assess the work submitted in such subjects as handicraft which are not suitable for written examination; they will examine the laboratory notebooks, and at their discretion will hold practical examinations in science subjects; they will also conduct oral tests in languages. In this connection there is an interesting suggestion that it may be practicable to test the pupils' speech by means of the phonograph. The results of these inquiries are to be submitted to the body responsible for the written examinations, and at the least they are to be taken into consideration in the final decision between failure and success. Under present conditions the teacher can keep some remnant of independence by setting off inspection against examination, or *vice versa*. The danger of the new system, as the committee plainly sees, is that teachers and schools may come to lean entirely on the inspectors, who will be in a position to reinforce their advice by their influence with the examining bodies. To counteract this tendency it is laid down that the interview examiners when about their duty in the schools shall abstain altogether from advice and suggestion, and shall be limited strictly to measuring the value of the work done.

The second great alteration of method proposed is that the teachers shall have some part in the final decision. The committee has rejected the principle on which this co-operation is based in the German leaving examination, viz., that the questions in the written examinations shall be chosen from a series drawn up by the teacher of the class. Such a method, in their opinion, is alien to the theory of external examinations in English schools, which is "that the pupil should be subjected to a test so withdrawn from any possibility of interference on the teachers' part as to be beyond challenge, independent and impartial," but the teacher is to keep a school record of every pupil, which the interview examiner must take into account. He is to be represented on the body which controls the examinations, as is now the case in the Northern University Joint Board; he is to submit his syllabus to the examining body, and is to be free to make representations to them as to the suitability or otherwise of any paper set to his pupils. Finally, he is to submit a list of his pupils, giving his own estimate of their relative merit, and no pupil is to be failed until the examination results have been compared with this

list. This particular proposal is actually in force in the Scotch leaving certificate examination.

With regard to the papers, the committee considers that at the most not more than half a dozen alternatives will require to be set in any subject. To the present writer it appears that this part of the matter has not been handled with quite the same masterly thoroughness as is apparent elsewhere. The committee rejects the proposal to decentralise the examinations because the schools should be grouped by type and not geographically. At the same time it advises a measure of decentralisation for the purposes of inspection, which it considers should be worked from provincial headquarters. One witness of great authority, the headmistress of the Manchester Girls' High School, directs attention to the difficulty experienced now in the working of examinations by remote universities. The argument for decentralisation is that for a limited number of schools it is possible to arrange an examination which, in Mark Pattison's words, "will follow the schools," or, as the committee puts it, "will fit each school as closely as a glove fits the individual hand." With the syllabuses for ten schools before one a paper can be framed which will give every candidate from those schools a chance of showing what he has learnt. With the help of the interview examiners this can be done for 100 schools, and is actually done in Scotland, but it is suggested that the committee has leaned a little too much upon Scotch experience; the problem in England is at least ten times as large, and the administrative difficulty of collating and sifting the different syllabuses will be very serious indeed.

To carry its scheme into effect the committee proposes the setting up of an Examinations Council, representative of the universities, the professions, the teachers, the Board of Education, and the public. Presumably it will also include representatives of those examining bodies which agree to come into the scheme. This body will be endowed with the necessary powers. It will be independent of the Board of Education, but will perforce work in close relation with the Board. It is not easy to see whence the Council will get its authority. An Act of Parliament will no doubt establish it, and the Board of Education and the local authorities will be expected to strengthen its hands by administrative regulation. But it is a condition of the problem that a large number of schools are at present beyond the reach of the Board and of the authorities, and that these schools form the great part of the *clientèle* of the bodies conducting unspecialised external examinations. Great care will have to be exercised if the recognised schools are not to be handicapped in the competition for public support.

The financial question is also one of some difficulty. At present the examinations pay their way, and are, indeed, popularly supposed to be a source of profit to their promoters. Under the new conditions this will cease to be the case. More

money must be found from somewhere for the interview examiners and for the highly complex administrative arrangements. Yet at the present time any additional moneys which can be spared for secondary education are urgently needed to improve the status and the prospects of the teachers.

It would seem presumption to attempt to pass a judgment upon the scheme as a whole. The committee has put before the profession a great conception, and has clothed it, to an extent which would hardly seem possible had it not been accomplished, with a wealth of educational and administrative detail. Before the scheme can be brought into force much must be done to pave the way. Meanwhile there are some things which might be done at once, both to mitigate the present situation and as steps in the right direction. First of all it would be well to gather to a focus the experience gained in other attempts to deal with the same problem. The German leaving examination has a history of 125 years; the Scotch leaving certificate is 34 years old; the examinations of the Central Welsh Board reach their majority next year. It is difficult for the Board of Education to publish critical accounts of these examinations, but could not one of the associations of teachers take up this project and let us know in detail what can be learned from the experience of other people? The evidence of Sir John Struthers on the Scotch examination, summarised in the report, and the memorandum by Vice-Chancellor Sadler on the German examination, printed in the report of the Commission on Secondary Education fifteen years ago, are valuable, but a host of questions are provoked by the report to which these papers give no answer.

In the next place, it would be helpful if one of the associations would take up the question of the school record, which is an integral part of the committee's scheme. In many schools a record is already kept for each pupil. The experience of these schools would be valuable to others who will have to set up the system of record if the scheme comes to fruition, and who, meanwhile, would like to make trial of the plan. The question is important for another reason. It is curious that nowhere in the report has the committee discussed at length the reasons for the faith in external examination which it has no hesitation in avowing. One reason which must appeal to everyone is that the certificate of the external examination is tangible evidence, so far as it goes, to employers and others that its holder has received a higher education of a sort. Could not a form of certificate, based upon the school record, be devised which would dispense with the necessity of the external examination from this point of view? The members of the committee evidently have such a certificate in mind in the proposals which they make for the secondary school testamur. They are limited, however, by their anxiety to prevent it competing unfairly with the secondary school certificate proper, but it may

be possible without going to the expense of setting up the new machinery to establish the suggested certificate by professional agreement, and thereby considerably to diminish the effect of the lower grades of the examinations. At least the effort seems worth making.

In the third place, something can surely be done to introduce order into the chaos of professional preliminary examinations. The conception which is very general among teachers that the professions are close corporations, and that the purpose of their preliminary examinations is to keep the younger generation from invading the citadel in overwhelming numbers, is, the writer believes, incorrect; rather the bodies responsible for the requirements of these preliminary examinations are concerned to secure that before entering upon professional study the candidates shall at least have had a sound general education. For the restriction of numbers, if there be a deliberate intention to restrict, the professional examinations proper are a much more effective instrument. Why, then, should not the Board of Education at once initiate a series of conferences with the different professional bodies, with the view of putting an end to the permutations and combinations of subjects which are so harassing in the upper forms of the secondary schools? The existing examining bodies are anxious for the prestige of their examinations, and have no wish to see any section of their clients betake themselves elsewhere. The Board of Education might well act as broker between the two parties.

The committee in the concluding sentences of its report alludes to the absence of driving power which rendered its report of 1904 barren of direct effect, although indirectly it has had considerable influence, and plainly says that it looks to the Board of Education to prevent a similar issue to their present labours. We are all nowadays more or less imbued with the bureaucratic spirit, one sign of which is the expectation that things will be done almost of themselves, that you can sail without a breeze if only you trim your canvas with sufficient dexterity. To the writer the prospect that the Board of Education or any other administrative body will provide the motive power of fundamental and far-reaching reforms is very remote. A strong Minister can often give effect to proposals which have been pigeon-holed for years in his Department. We have had such Ministers at the Board of Education before, and we may have them again. But the average administrator must content himself with "the wages of going on." The pressure of current business, the daily routine which must be gone through, leave him little energy to initiate reforms which have no instructed public demand behind them. So long as it is possible for the committee to say, as it does, in reference to the present dissociation of teachers and inspectors from examining bodies, that it doubts whether "the majority of teachers are conscious of any objection to this state of things," "this state of things" is hardly likely to

be remedied. By thoughtfully reading and discussing the problems raised in this report teachers and educationists generally can show their gratitude to the committee for its work, and can begin the creation of that informed and widespread body of opinion which alone can free the schools from their examination fetters.

THE QUESTION OF GREEK.

By W. F. WITTON, M.A.

St. Olave's Grammar School, Southwark.

THE thanks of preparatory schoolmasters are due to the headmasters of Eton, Harrow, Charterhouse, Rugby, and Winchester, whose lead will, no doubt, be followed by others, for relieving them of the burden of teaching three or even four foreign languages to little boys of eleven and twelve. In future, boys need not begin the study of Greek in the public schools till they are fourteen, and in certain cases need not take it at all; and the public schools will discover in due time what the grammar schools have already found out, that a boy may delay beginning Greek till he is fourteen or even fifteen, and yet obtain a First Class in Classics.

The change will affect but slightly the position of Greek, which will still be an integral part of the curriculum of the public schools; but whereas in the past some boys have left these schools with only a scanty knowledge of Greek, in future about the same number will leave them with no knowledge at all of it. And this is a change for the better, for the existence of the former class was one of the strongest arguments brought forward by the opponents of Greek; if we can abolish the smatterers that argument fails. Will the public schools now adopt the suggestion of the Classical Association, that except in the case of candidates for Honours in Classics, Greek grammar should be regarded as of secondary importance compared with the reading of Greek literature? It is the grammar paper more than anything that produces the smatterer.

Even should Oxford and Cambridge abolish compulsory Greek, I venture to think that the position of Greek in our schools would not be weakened. It would be dropped, no doubt, where it is at present taught merely in order to get science scholars through the Little Go; but students who acquire a modicum of a subject, *invita Minerva*; in order to "satisfy the examiners," bring only discredit upon the subject they study. So long as a literary education is regarded as the best introduction to the professions and to public life, so long will those schools which have hitherto prepared their pupils for a degree in classics continue to do so; and it will be long before the older universities entertain the idea of classics without Greek.

That there is a demand for Greek teaching apart from university requirements is shown by the fact that in the younger universities, where it is not compulsory, it is still studied; in fact,

several of them have found it necessary to provide facilities for their students to begin the study of it. It is unfortunate that Greek should thus be put upon a level with Arabic, Icelandic, and Hausa, but the blame rests upon the schools, not upon the universities.

The Hellenic Society seems justified, then, in its attempt to foster the study of Greek. Its recently published report contains, along with other recommendations, one that in universities, "wherever only one classical language is required, Greek should be admitted as an alternative to Latin," and another that in the smaller secondary schools Greek "should not be placed at a disadvantage compared with other subjects." It seems, however, doubtful whether at present, when Greek grammars and text-books generally presuppose a knowledge of Latin, the study of Greek could be carried to any useful length without Latin, although at Cardiff we are told that nearly a quarter of the classical students are dispensing with Latin, or at least are not offering it as a subject. Certainly in schools Greek without Latin is unthinkable, except in isolated cases. The Classical Association received these recommendations sympathetically, but reserved its judgment until further consideration could be given to them.

One suggestion of the Hellenic Society may be heartily supported, that Greek authors other than the Attic writers should be read in schools. Thucydides, Plato, Demosthenes, and the tragedians are both harder and duller to the beginner than Homer and Herodotus, the two authors mentioned in the society's report. Why should we not go further and read Lucian, Plutarch, and the New Testament? The objection, of course, is urged that external examiners would find a difficulty in framing a fair test of an elementary nature based upon reading that ranged from Homer to St. Paul; but schoolmasters have little sympathy to waste on external examiners; let them set alternative papers. Why should a Divinity student not be allowed to read a school edition, say, of the Acts, and offer that, simply, to show his knowledge of Greek? Is, I wonder, the external examiner, with his grammar paper, partly responsible for the decay of Greek in the United States, where the churches cannot find sufficient candidates for ordination?

THE HOME OF THE UNIVERSITY OF LONDON.

MANY teachers who have had occasion to visit the headquarters of the University of London at South Kensington—whether for purposes immediately connected with their profession, such as a visit to the library or an interview concerning inspection or school examinations, or to be present at a meeting of Convocation or at one of the great ceremonial functions of the University—must have felt the inconvenience occasioned by the home of the

University being so far from the centre of London. It is true that the inconvenience has been greatly lessened in recent years by tube railways and motor omnibuses, but it is still great enough to deter many a busy man from making that use of the University which would be to their mutual advantage. Further, the inadequacy of the accommodation assigned to the University in a building which does not even bear its name (how many cabmen know where to go if told to drive to the University of London?) is notorious; and the strange wooden structures which disfigure the corridors of what is perhaps the finest example of modern architecture in the whole of London, in order to provide places where routine work may be done from day to day, are in themselves an eloquent protest.

The Fourth Report of the Royal Commission on University Education in London is therefore of immediate and personal interest to all those who are in touch with the work which the University carries on in the educational and intellectual life of London—work which, in the opinion of the Commissioners, entitles it to be recognised and accepted as a great public institution, and one which can justly claim public recognition and support.

The Commissioners point out that the inception of any scheme for the reorganisation of the University which they may eventually recommend would be seriously delayed unless steps had previously been taken to provide for the University a site and buildings more convenient and adequate than those which it now occupies. Edinburgh has its McEwen Hall, Manchester its Whitworth Hall, but the University of London has to hold its great ceremonies and International Congresses in a temporary wooden structure which was originally intended merely for the opening of the Imperial Institute a quarter of a century ago! The new University building should have a great hall worthy of the capital of the Empire, and worthy of the many important gatherings which would be held there. It should provide accommodation for the Senate, for committees, for the Principal and the headquarters staff. It should include suitable quarters for Convocation, and graduates should have a place of their own within its walls. There should be a club-house for the union societies, headquarters for the Officers' Training Corps, rooms for professors and students, in short, proper facilities for developing the social and corporate life of the University. There should, too, be commodious lecture halls, and provision should be made for the library. The central examinations might be provided for more economically elsewhere.

Accommodation for all the purposes which are mentioned, not one of which can well be ignored, in a situation worthy of the dignity of the University, would necessitate a site of considerable extent and the expenditure of a very large sum of money. At a rough estimate, we imagine that a site not less than four or five times as large as that occupied by the London Day Train-

ing College and the Central School of Arts and Crafts in Southampton Row would be required, and the cost, including that of the building, could hardly fall short of £500,000.

The Commissioners point out that a great university cannot exist financially on the fees of its students, and they appeal for liberal support from private benefactors. The home of the University of London should be of a character which would impress upon the public the national significance of the work which the University carries on, and we hope that the recommendations of the Royal Commissioners—recommendations which constitute an appeal of so unusual a character that it can only be prompted by the realisation of the tremendous importance of its object—will meet with a suitable response.

EDUCATION AND THE STATE.¹

By MICHAEL E. SADLER, C.B., M.A., LL.D.
Vice-Chancellor of the University of Leeds.

INTRODUCTION.

IN this paper it is proposed to discuss the educational function of the State in its three-fold aspect: (1) the central authority; (2) the local authority; and (3) statute law, as interpreted by the courts. This interpretation of the term excludes a good deal which we should rightly take into account in any complete estimate of State influences in national education, but has the advantage of keeping the field of discussion within moderate limits. It is also proposed to employ the term "education" in the limited sense of organised instruction provided in schools, recognised classes, colleges, and universities, not that these categories necessarily include the greater part of what is most penetrating and practically operative in the educational life of the people, but because they can be conveniently grouped together as including the points at which public administration has its closest contact with the practice of education.

For practical reasons, this paper concerns itself with the problem with which we have to deal in England. But in no branch of educational inquiry is the study and comparison of different national systems more fruitful and significant than in this, provided always that those who essay the task of making comparisons refuse to content themselves with superficial and merely casual contrasts between the real conditions of educational government in the countries compared.

COMPLETE CONTROL OF EDUCATION BY THE STATE INEXPEDIENT AND IMPRACTICABLE.

It is, I believe, a fallacy to think that the State, acting as a political organisation, can permanently control the principles and opinions of the rising generation, by means even of an attempted monopoly of schools, and still less by the mere

prescription of courses of study, even when combined with strict laws for the licensing of teachers. The mind is free. It is true that the exercise of it may be cramped by mistaken forms of State control. But it is impossible for the most powerful and systematised Government permanently to repress the growth of new ideals, or to crush down the new thoughts which spring incessantly from the inner life of a nation or of a group within the nation. The intellectual destiny of a people may be thwarted by State interference, but cannot be controlled by Governmental regulation. For centuries an attempt was made (on paper at any rate) thus to control the spirit and tendencies of English education by statute and ecclesiastical restraint. Much of the spiritual disunion which, to this day, weakens our country may be traced to these clumsy attempts at the enforcement of religious uniformity in national education. But every advance in educational freedom (when combined with earnestness of conviction and thoroughness of work) has justified itself in history. And there is little prospect of the secular organisation of the modern State succeeding in an attempt which baulked the combined efforts of Church and State working together. Indeed, the changes which have come about in modern life (and especially facilities of movement and rapidity of communication between different parts of the world) increase the unlikelihood of the permanent success of any attempt at the strict regulation of the educational life of a people. A complete control of education by a bureaucratic State is inexpedient and, even if it were wise, impracticable.

On the other hand, equally inexpedient and impracticable would be the complete immunity of every educational institution from public supervision. Even Adam Smith was forced, almost against his will, to admit the necessity of State action in the education of the people. In educational affairs, *laissez-faire* is as false a gospel as is the doctrine of collectivist control. The reason for this lies in the nature of the service which education has to render. It is a semi-public, and at the same time a semi-private, thing. On the one hand, in the interests of the future, it is answerable to the conscience of the community as organised in the superintending power of the State. On the other hand, in the interests of spiritual and intellectual freedom, it must respond to the originality of individual conviction, and must lie open to the influence of new conceptions of life and of personal duty. In educational administration, therefore, our task is to adjust the claims of liberty to the need for public economy and public order. In the constant change of social conditions, this delicate adjustment calls frequently for reconsideration, and especially so in a time of intellectual revolution like our own. No single formula for such readjustment can be applied successfully at any one time to all the grades of national education, or even to every type of school within each grade. So far from its being a discredit to us in England that we

¹ From a paper read at the North of England Education Conference, Newcastle, on January 6th.

shrink from the theoretical rearrangements of our educational system as a whole, it is a mark of prudence and insight to prefer a mode of action which may be confusing in its complexity, but is nevertheless more nearly accommodated to the infinite variety of the facts. In saying this I have no wish to whitewash our faults of timidity, of niggardliness, of indolence in generalisation. But it is only those who have not the industry to get close to the facts who describe English education as a chaos.

The essential thing is that the intellectual and moral autonomy of every school, college, and university should be secured, subject to the enforcement of sufficient guarantees for the adequate discharge of its appointed duties, and of its responsiveness to the valid claims imposed upon it by public trust.

CURRICULUM AND INSPECTION.

As regards curriculum, experience shows that over-regulation is a mistake. A school is a living thing. It must grow according to the play of the inner powers of its staff and its pupils. No one school can do everything well. It is far better that it should have freedom to develop along the lines of its own capacity and instinct than that it should have forced upon it, by a distant authority, aims and methods foreign to its genius and alien to its gifts. The schools which have made the greatest mark in history are those which have had a character and a tradition of their own. And this character and tradition have been the outcome of the devotion and insight of groups of teachers responsive to some dominant impulse, and expressing in their course of training some view of life which sprang from the heart and translated itself into teaching and discipline.

On the other hand, every competent teacher realises the limitations of his powers, and how much he can learn from the experience of others and from the advice of well-qualified authority. The State, therefore, may accomplish one of its greatest works by diffusing throughout the nation, and especially among those concerned in education, accurate and lucid records of what is being done in the best schools in different parts of the country and in other lands. With the help of the Press and of the public libraries, the powers of the State as a disseminator of new educational ideas have greatly increased within the last thirty years. But these powers are not yet fully used.

Moreover, there are certain conditions which we should agree in regarding as justly applicable to all places of recognised instruction throughout the country. Such, for example, are reasonable requirements as to school hygiene. These it is part of the duty of the State to enforce, with due regard to local conditions and with careful avoidance of faddist extravagance, in every school, public or private.

Further than this, it will be generally agreed that the State is justified in forbidding any kinds of teaching which are noxious to the common welfare. Here we touch upon a point of greatest

difficulty. The State, like any one of us, may misjudge what is noxious to the commonwealth. But we can only protect ourselves against a mistaken use of State authority in these matters by being prepared, under the stress of conviction, to sacrifice our personal interests in protest, and, if necessary, in defiance. In England, however, the State has had the good sense to leave plenty of safety-valves open in national education.

History proves the value of the good private school as a pioneer in new educational methods and as the preserver of some temporarily unfashionable aspect of educational truth. It is a pity that there are so many tares among the wheat.

The case of the State-aided or rate-aided school is different in some respects from that of the private school. The private school may justly claim a much larger freedom than the school which is aided from public funds. Still more exacting is the claim of public supervision upon schools and institutions which derive the whole of their income from rates or taxes. The acceptance of public aid is equivalent to signing a contract with public authority for the discharge of certain specified duties. But even in the extreme case of complete maintenance out of public funds, it is expedient, in the interests of educational progress, that every school, college, or university should enjoy freedom of self-development, within the limits set by the need of doing justice to the claims of the whole body of tax-payers or rate-payers concerned. Educational vitality is the best thing that public money can buy. Judicious and sympathetic inspection is a sufficient guarantee against indolence or perversion of trust.

Inspection is one of the administrative contrivances for which we have to thank Jeremy Bentham and the Utilitarians. No part of their political theory has been more permanently useful to the country than this. But (if an outside critic may venture to say so, with the most cordial acknowledgment of the service rendered to education by the officials concerned) there is some waste of effort and of expensively gathered experience in the present organisation of the inspectorate. Would it not be possible, at each of the chief provincial centres, for the Government to provide for the Board of Education's inspectors (primary, secondary, and technical) an office where the inspectors could regularly meet, where a staff of clerks could relieve them of the more mechanical part of their reporting duty and correspondence, and where records of their experience of the schools in the district could be preserved? The value of such provincial headquarters for the inspectorate would be increased if they included rooms in which conferences could be held from time to time between the inspectors and representatives of the local authorities, or teachers, or employers and work-people in the different trades.

FINANCE.

Three parties share the burden of the cost of education, excluding that which is defrayed from endowments: (1) the central authority of the

State; (2) the local rating authority; and (3) the parents.

With the contribution made by the parents this paper is not concerned. It must suffice to say here that self-denial practised by parents in behalf of their children is one of the finest traits in national character, and that it is by no means to be measured by the amount of the school fees, if any, which have to be paid in behalf of the children.

As regards the division of the financial burden between the central and local authorities, the just proportion seems to vary according to the type of education concerned.

In elementary education, the results are presumably beneficial in practically equal ratio in each area throughout the country. The national interest and the local interest in the efficiency of the schools are practically equal. It seems a fair principle, therefore, that in the finance of elementary education, half the expenditure which has to be met out of public funds should fall upon the Treasury and half upon local rates. This implies the acceptance of a normal standard of efficiency, according to which the average cost should be measured for such partition of burden between the central authority and the local. But the local authority should be free (and more than free, encouraged) to enhance the excellence of its local educational system by contributing more than the moiety of what (taking the country as a whole) would be the average normal expense. Similarly, it is desirable that endowments, instead of being allotted to the relief of rates, should be expended with the purpose of raising the efficiency of the favoured schools above the normal level attainable elsewhere. Unless endowments are used in this way, what motive will there be in future for benefactors to give money to public elementary education? And what a misfortune it would be if the interest and sympathy of which endowments are one sign were discouraged by a mistaken treatment of endowments already given.

In secondary and technical education of the lower grade, the principle of half contribution from the State and half from the local authority seems the most reasonable that can be adduced. In this case there would be frequently a larger income from fees, which would swell the share borne by the locality or by those resident in it.

In the case of secondary and technical education of the higher grade, it seems just that the national contribution should be two-thirds, and the local rate contribution one-third. In all cases, the highest types of secondary and technological education must be focussed at certain centres. It is unfair to impose upon those centres a burden which is out of proportion to the advantage which they themselves derive from it. Moreover, the product of the highest types of education is frequently needed for work of a predominantly national, rather than of a predominantly local, character. It is, therefore, just that the central State should contribute a large proportion of what-

ever public expenditure these highest types of education involve. In certain branches of university education, the proportion of grant from the central authority might even be larger than two-thirds, *e.g.*, where it might be thought necessary, with the sanction of the State, to develop at one particular centre a form of instruction designed to meet a national, and not a local, need.

But, in almost every case, it is of high importance to the future of education that the central authority of the State on the one hand, and the locality (including the local authorities, private benefactors, and parents) on the other, should bear alike their part in undertaking the financial liabilities involved. Freedom and variety of effort are indispensable to the permanent welfare of education. These are promoted by arrangements which appeal to local patriotism, and at the same time secure supervision on the part of the central authority of the State.

It is desirable that the State should liberally promote well-planned and accurately recorded experiments in different branches of education. Considering the immense amounts of public money now spent on the educational services, far too small a margin of the outlay is assigned to scientific experiments, the value (and indeed the necessity) of which are recognised in the chief departments of national industry.

The benefit of spending public money in the distribution of educational information has been more fully recognised in the United States than in this country. But for many decades the English Government has done more in this direction than its critics have always remembered. So far as my own knowledge goes, there is no official educational literature in the world more trustworthy in its statistics and more comprehensive in its occasional investigation than the English since 1840. The publication by Government of occasional reports by Matthew Arnold, Sir Joshua Fitch, and others stimulated public interest in questions of public instruction. And sixteen years ago, at the instance of Mr. Acland, the Education Department began its series of *Special Reports* which have been continued at frequent intervals to the present day.

Time does not allow me to discuss in this paper, with the detail which the difficulty of the subject requires, two questions of considerable importance: (1) Is it desirable that the central departments of State alone should have their inspectorates maintained from national funds? (2) Should grants from rates, or taxes, or both, be made (and, if so, on what conditions) to schools and institutions under private management, or under corporate management, or under representative (though not popularly elected) governors? My own judgment inclines to the view that any administrative monopoly in education has grave disadvantage. And it will be generally agreed that valuable public service can be got from voluntary workers if we are not too pedantic to grant (under vigilant conditions) public aid towards the organisation of their labours.

DIVISION OF CONTROL AS BETWEEN THE CENTRAL AND LOCAL AUTHORITY.

It seems to me impossible to lay down hard and fast lines of demarcation between the provinces of the central and of the local authorities in national education. The idea that a local authority should be given a monopoly of educational control within its own area is open to objections hardly less grave than those which would be raised by any scheme for giving an educational monopoly to the central authority. Every problem of education should be looked at by the central authority in the light of its local application, and by each local authority in the light of its national significance.

We may therefore welcome the administrative tendencies which are bringing the central and the local education authorities into closer communication with each other, and the members of the teaching profession into closer communication with both. But it would not be difficult to devise great improvements in the present machinery for consultation between the Board, the local authorities, the teachers, and the educational institutions involved. I do not myself favour any proposal for setting up a council of local authorities, with statutory power to checkmate the Board of Education in its issue of administrative orders. One man must drive the car. The Board of Education should be responsible for its own policy. Might it not, however, organise more effectively the machinery of consultation? Many converging needs, now present to the thoughts of Government, may lead them to consider the desirability of establishing an educational council, with an office at the Board of Education. Such an educational council would include a large number of representatives of the local authorities, urban and rural, as well as of the teachers, the universities, &c. Into this educational council the present consultative committee might be merged; and the teachers' council, needed for purposes of forming a teachers' register, might be one great section of the educational council, which, from time to time, would meet in plenary session, and thus bring its varied experience into common stock for the guidance of the State.

THE METHODS OF RAISING THE MORAL TONE OF THE SCHOOL.¹

By Miss G. McCROBEN, M.A.

Headmistress of Girls' High School, Wakefield.

IN the primitive stages of a nation's history, a man's object in life is to supply the necessities of life for himself and for his family, and he recognises no other claims upon him. Then gradually the claims of the tribe grow up, and he responds to them, and is ready to make some personal sacrifice when the call comes. The passing of centuries brings about the growth of the nation, in which the tribes are all merged, and the individual is ready to fight and to die for his country. Then comes the growth of enthusiasm

for a cause—that spirit which has inspired men to lead forlorn hopes and to die for an abstraction—it may be liberty, it may be patriotism, it may be religion, but, in any case, the cause is sufficient to inspire them to do and die. With the growth of the Constitution and the rise of the middle classes there come other opportunities for the individual to serve his country by work in some form or other, and the sense of corporate life and its claims make themselves felt. The primitive conception of the personal aim gives way to the higher thought that there is something greater than mere personal desire, that there is a larger life, for the welfare of which sacrifice on the part of the individual is necessary.

It is this knowledge and this spirit that we want to create in the young people of to-day, to turn their energy into this channel, so that instead of looking upon pleasure and games as the serious business of life, they may care for the really interesting things, for helping on the larger life, for work apart from the mere wage-earning work of every day, and so they may respond to the claims of corporate life in some form or other. There are of course, many ways in which each can take his or her part, too many to enumerate, but to all persons opportunities are given, if they will only avail themselves of them.

School training does not consist of preparation for any definite kind of work so much as the rousing of that spirit which makes it possible for young people to merge themselves in the larger life, to be ready to give of their best for the cause of humanity without looking for reward or recognition; that training in citizenship and the sense of responsibility involved in the meaning of the word, that realisation of the brotherhood of man, which makes the claims of others upon man's interest and leisure imperative, which makes men ready to respond to any sacrifice, however great, which may be demanded from them. The question before us as teachers then is, how are we to produce in the boys and girls, whose training we share with the parents, that spirit, that tone, that attitude? We have good material to work upon, for youth is full of enthusiasm, of energy which requires to be directed into the right channels, of generous impulses and desires, which must be crystallised into habits before the paralysis of idleness and ease creeps over them. We have a good engine full of latent power but needing the motive force to start it and keep it going. How then are we to supply that motive power, that enthusiasm for the larger life? Can it be done by inclusion in the time-table of lessons on civics and morals? Can it be done by methods of teaching? The answer is emphatically "no" if that is the only solution. There is nothing so deadening as methods wrongly applied; the very best method used by others than the originator is apt to become "a tradition of the elders," to preserve the letter at the expense of the spirit. Utopia itself in its uniformity must have had a very deadening effect in time. It is an *atmosphere* that we want to create, a tone, a spirit, and to do that we must

¹ A paper read at the North of England Education Conference, Newcastle, on January 6th.

not depend upon certain hours of the week devoted to civics or morals, or upon any formulated methods. The essence of atmosphere is that it must be all-pervading and not confined to one particular place or time, and the essence of training is that it must be individual and constantly changing to suit different people and different circumstances.

It is a truism to say that in teaching the most important element is the personality of the teacher, but this truism is even more obvious when we speak of moral training. Here the personality of the teacher is all-important, and if every school had an ideal staff and an ideal head, there would be no need to consider the question. The teacher who is to have an influence over her children must possess those qualities which she would train others to acquire. It is useless to impress upon boys and girls the claims of corporate life unless the teacher realises and responds to these claims. The great essential in all is enthusiasm, the power of caring, and, therefore, the power of touching the sympathy and imagination of others, and making them care too. Personality will then make itself felt, and enthusiasm communicate itself to others through the medium of any lesson.

At the same time, there are certain subjects in teaching in school, apart from any definite religious teaching, which lend themselves most obviously to the development of a sense of a corporate life and its responsibilities. The English literature lessons cannot fail to stir the imagination and rouse enthusiasm in children, and history, with its story of national growth, and record of the great men of the past, who have given their life's work to the building up of the nation, must of necessity awaken in them a sense of the national life, and with it should come the desire of a part in that life. Public spirit is stirred and quickened by treatment of history in some story books, such as Kipling's "Puck of Pook's Hill," and "Rewards and Fairies," with their underlying thought of the development of a nation, and its patriotism from many different elements, or such as Henry Newbolt's historical stories, with their insistence on the claims of the past, and their imaginative and romantic side, or such poems as Noyes' "Drake," with its enthusiastic patriotism. Whatever point of view we may take of Fletcher and Kipling's "History of England," no one who has anything to do with children will deny the stirring effect upon them of "The Glory of the Garden."

Our England is a garden, and such gardens are not made
By singing: "Oh, how beautiful," and sitting in the shade,
While better men than we go out and start their working
lives

By grubbing weeds from gravel paths with broken dinner
knives.

There's not a pair of legs so thin, there's not a head so
thick,

There's not a hand so weak or white, nor yet a heart so
sick,

But it can find some needful job that is crying to be done,
For the Glory of the Garden glorifieth every one.

There is no doubt that a poem like that stirs

aspiration, and it is for the teacher to see that it does not merely stir in the children a passing emotion which dies away and leaves no result.

As an essential part of history teaching, comes some knowledge of the growth of the Constitution and methods of government, but special lessons should also be given in civics to all elder girls, as they require to have more definite knowledge, especially with regard to municipal affairs and the work that will be open to them in after life.

But apart from the training to be derived from the lessons themselves, there are other ways in which the sense of a corporate life can be quickened and deepened. If the girls are trained to realise themselves as a part of the school around them, and to respond to its calls for public spirit, they will the more readily respond to the claims of the corporate life after schooldays are over.

These claims are not only for voluntary work to be done gladly for the public service, but are also requirements of *character*, and this building up of character is the main aim of school life. If the nation is to be great in the best sense of the word, the individuals who make that nation must be honourable and upright, thorough and enthusiastic, capable of endurance and self-sacrifice. How, then, are we to train our pupils to be this?

There is a strong movement on foot now for the moral training of children, and in many schools lessons of morale generally, and the acquisition of certain moral qualities, are included in the timetable, but here I am not in agreement with the advocates of this, because such training seems to me to lose force by its very regularity. There is no doubt that talks on moral ideals and aspirations should be given to the girls by the head and the staff, but these are much more effective when they are kept closely in touch with the life of the school, and the necessity for them does not arise every week at the same hour, and on some occasions much more is needed than on others. Here again, however, the training is more one of atmosphere and an attitude of mind, and it cannot, therefore, be confined to either a weekly lesson or to occasional talks, but must make itself felt in all lessons and at all times. These talks may often centre round the school motto, which is a very important factor in a school's life, as it voices an aspiration. If this aspiration contains some idea of service to others, or implies public spirit in some way or other, ideals of conduct can be constantly referred to its standard, and there is no doubt that a motto as the definite expression of an ideal is a great help to individual girls in instigating to action.

The whole system of school discipline bears on the subject of character-training, and therefore of fitting boys and girls for corporate life. Here everyone will be agreed that discipline must be founded upon mutual trust and not upon the fear of penalties to be exacted for disobedience. In every school there are pupils who have little realisation of principles of honour, and these cases are best dealt with individually as each needs

separate treatment. When once a school tradition of honour and pride in being trusted is formed, the girls themselves keep up the tone by bringing pressure of public opinion to bear on those who transgress the laws of honour. It is a good plan to talk to the new girls each term and make them realise that honour and uprightness and courtesy are expected from all members of the school.

For the development of self-help in the girls, the fewer rules there are the better, and these should not be written, so that they may realise that it is not so much the *keeping of rules* as the *being a person* who does not need rules that is desirable. The outward form of some school hatband or badge is a help in the realisation of responsibility as members of a community, whose honour they are bound to maintain out of school as well as in it. By means of a system, girls who show qualities of leadership have opportunities of developing them. Prefects themselves have often more chance than the staff of seeing where there is need for improvement, and can do a great deal in raising tone. The post of prefect is one to which all girls aspire, and so they realise that it is a privilege to be allowed to serve the community.

A good school library is, of course, a great factor in moral training, as girls form an attitude of mind very largely from what they read, and especially from story books and novels. It is a good plan to have a branch library in each room, as it gives to the form mistress an opportunity for recommending books and discussing them with her girls, and all talks of this kind give an insight into the minds and thoughts of her pupils, and afford opportunities for influence.

Such school ceremonies as those of speech day and foundation or commemoration day are a great help in the building up of the traditions of corporate life. Commemoration day has its foundations in the past, and gives a time for reviewing where we stand, and for seeing how far the school is upholding and furthering the traditions of the past.

Another school function of the same kind is that of a supper for elder girls, generally held on the last night of the school year, at which the toasts of the school and its different sections are given, and speeches made by the girls themselves. All these are of use, as they are a conscious expression of a sense of unity and of the value of corporate life, and the occasional expression of a deep feeling helps to deepen it. If, on the other hand, this occurs too often, the feeling itself is weakened and is apt to become shallow.

One of the most obvious times in which the sense of a corporate life is present is on Empire Day, if this is rightly kept and without any of that spirit of Jingoism which sometimes accompanies it. The realisation of the larger life then is a deep one, and the object in keeping the day is to bring home to each one the thought both of the privileges and of the responsibilities of each citizen of the Empire. The value of Empire Day rests, therefore, mainly on the address given to

bring home this sense of citizenship and on the personality of the speaker. Such songs and recitations as Kipling's "Land of our Birth" and "The Recessional," Noyes' "Empire Builders," and Newbolt's "Vigil," may be given, as they strike the keynote of earnestness and sincerity. In some schools there is the saluting of the flag on somewhat similar lines to the custom in American schools, but the tendency is for that to become a glorified drill, and not to bring out those deeper feelings of patriotism and earnestness which are the keynote of an Empire Day celebration.

All societies and clubs which give opportunities for self-expression on the part of the girls help to develop them as separate entities, and this is especially the case with debating societies, where questions of interest of the present day are often discussed. Where the organisation of these societies is in the hands of the boys or girls the benefit is great, as it deepens the sense of responsibility and enhances the love of service, and also gives them some practical knowledge of the management of a meeting.

The games afford great opportunities of moral training if played in the right spirit. The girls play for their side and not for themselves; a half-back at hockey will do the work of bringing the ball up and then pass it to the forward, who shoots the goal and gains the honour and glory. The game of hockey or lacrosse is a practical realisation of interdependence, and the game is ruined by a selfish player. It is, therefore, of the utmost importance that the spirit of the games should be good, for it is a great factor for good or evil in the tone of the school, and the mistress or girl who is in charge of the games should be very carefully chosen.

The Old Girls' Association brings girls of all ages and standing together, and is a conscious expression of loyalty and gratitude to the old school. The sense of a corporate life is deepened by the fact that the school is not for the present only, and that the old girls still have opportunities of service, and are an essential part of the school.

If this spirit of being able to merge themselves in the larger life of the school community is roused, and becomes a real part of character, it ought to inspire boys and girls in after life to take their part honourably in all citizenship. Henry Newbolt has shown us in his school poems what a hold the school and its traditions have over a man in after life. The spirit of the playing fields—

Play up, play up, and play the game,

may inspire a man to lead a lost cause, the remembrance of the old school may be an inspiration throughout life, the desire to be worthy of that school and of its traditions, and the knowledge that the school watches the after life with sympathy, with pride, or with sorrow—all these are strong factors to "acquit ourselves like men" through life:

For though the dust that's part of us
To dust will soon be gone,
Yet here shall beat the heart of us,
The school we've handed on.

THE PRESENT POSITION IN REGARD TO FORMAL TRAINING.¹

By CHARLES S. MYERS, M.D., Sc.D.

Lecturer in Experimental Psychology in the University of Cambridge.

THE subject upon which I have been asked by my friend, Dr. Kimmins, to prepare an address is entitled "The Present Position with regard to Formal Training." At the outset I need hardly point out to you my various disqualifications for dealing with this topic. In the first place, I am capable of dealing solely with the position of the *psychologist* in regard to formal training; I know practically nothing of the attitude of pedagogy towards it. Secondly, in speaking of the *present* position with regard to formal training, I am grossly ignorant of the past position. Formal training must have an interesting history and development, a knowledge of which is essential to a due appreciation of its present position. My own acquaintance with the past history of formal training is almost limited to my experience as a schoolboy, when, like so many others, I had to learn by heart page after page of the *Æneid* and of doggerel rhymes about Latin genders, in order, I suppose, to educate my memory; when I had to master whole books of Euclid, in order to cultivate my powers of reasoning; when my attention was enforced to material which was utterly uninteresting because it was almost incomprehensible to me, for the sake of exercising that discipline of mind which overcomes the temptations of distraction.

But I suppose that all of us here have experienced to the full the benefits of this doctrine of formal training—I mean the doctrine that the *material* which is set before the child is of little or no consequence for training his memory, observation, reasoning, and the like; and that whatever improvement in any of these powers is gained by the child's exercise at one kind of material can be utilised by him when he is confronted with other material.

The source of this doctrine may be readily traced to naïve experience. There can be no doubt that, when we learn, remember, or reason, there is in each case a common element in our experience, whatever be the material we learn, we remember, or about which we reason. Whether we learn facts of history, natural science, poetry, or carpentering, we are *impressing* experiences presented to us through our senses. Whichever of these experiences we remember, we are (in a general sense) *reviving* impressions. So, also, whatever be the material about which we reason, we have one and the same experience of drawing inferences from certain premises, of creating judgments deductively or inductively. Whence, as you know, arose the "faculty" doctrine that we have separate faculties of memory, of reasoning, of attention, imagination, observation, etc., that we have mathematical, æsthetic, and moral

faculties, that the whole object of education is to train these faculties, and that the material whereby the faculties are trained is of quite secondary importance, so readily are practice effects transferred from one material to other materials in the exercise of one and the same faculty.

Thus the doctrine of formal training is traceable to what I have called "naïve experience." But is it merely *naïve* experience? Is it not also *crude logical* experience? Is it not a part of the same topsy-turvydom which makes the adult think that grammar formed the actual starting point of language, that scales formed the actual starting point of music, whereas more mature observation shows us that grammar and scales are of late origin, deduced by races that have already passed their childhood stage? So, too, surely the child is commonly unaware that he is using the same powers of reasoning whether he be working out a rider in geometry or deducing analogies from facts of history. Thus, at the outset, it is quite conceivable that whatever truth there be in the doctrine of formal training (and I by no means wish to assert it to be destitute of truth), the doctrine may have to be stated very differently in the case of the untrained child and of the fully trained adult. The benefits derived from formal training may be quite of a different order in the child and in the adult.

The doctrine of formal training receives apparent encouragement from the trend of a very active and modern school of psychologists, who divide the subject-matter of psychology into two broad divisions—acts and contents. The act is the process of consciousness, the content is its product. Thus the act or process of learning is distinguishable from the content or product of learning, *i.e.*, from what is learnt. The act or process of attending is distinguishable from the content or product of attention, *i.e.*, from what is attended to. So also the act of discriminating is distinguishable from what is discriminated, the act of willing from what is willed, the act of reasoning from what is reasoned. Indeed, some psychologists have gone so far as to admit only the acts as psychical, urging that the content of consciousness (sensations, percepts, images, thoughts) are as physical as external objects themselves.

Now if, according to the teaching of this school of psychologists, we specify a single act, *e.g.* the act of discrimination, as responsible for the various forms under which this act appears to manifest itself, we obviously favour the doctrine of formal training. The act naturally comes to cover all acts of apparently the same kind. It is one and the same act of the Ego—Self-activity of a certain kind. Provided that the Ego is actively, let us say, discriminating, the natural inference is that any improvement acquired in the act will be maintained and evinced independently of the nature of the content of consciousness. For example, I may practise discrimination between two weights lifted by the

¹ A paper read at the London County Council Conference of Teachers on January 5th.

arm, and afterwards I may seek to discover whether the improvement thus effected is transferable to the discrimination between the lengths of two straight lines seen by the eye. In each case, it may be argued, it is the Ego that experiences one and the same act of discrimination. We are thus disposed to speak of a discriminating faculty, and to expect a ready transference of improvement—which, as a matter of fact, by no means necessarily follows.

Now let us by all means separate mental act or process from mental content or product. But let us not confuse all mental activities with Self-activity, that is to say, the Ego's experience of those mental acts or activities. Consider what a vast psychical and physiological "mechanism," if I may use the term, is involved in the elaboration of any act, *e.g.* the act of discrimination, before the Ego can experience Self-activity of this kind, before the Ego can become conscious of that act as such. The consciousness of Self-activity, as we experience it, instead of being a primary experience, must be the ultimate and most complex expression of mental activity, the final integration of vast hierarchies of more or less independent systems. Do we not see the influence of these independent systems in our daily mental life, when we have ideas working out their own end, passing over into actual movement, without the participation of the Ego in their mental activity? In posthypnotic suggestion, again, how little share has the normal Ego in the mental activity of the ideas which are finding their way towards expression! These instances may suffice to indicate the profound change that has taken place in the modern attitude of psychology towards the Ego; they may suffice to show how much attention is being and has still yet to be paid to lower systems of activity, in which Self-activity, as we experience it, cannot be said to be involved.

Consider, for example, the changes which are produced by a lesion of the cortex of the brain. In certain lesions, the contact of two successive weights with the skin may be recognised, yet they cannot be compared. Two touches at different points on the skin may be felt, yet the spatial threshold may be unascertainable. The patient may be able to feel objects placed on the skin quite well, and yet he cannot appreciate their size or their form. But I would ask you to observe that these and other effects are confined to the functions controlled by the sensory cortex which has been injured. If there be loss of discrimination as regards cutaneous sensibility, this loss does not involve a loss of the power of discriminating lengths of lines by the eye. If the cortex, say, of the right side be affected, the effects are confined to the left side of the body. That is to say, the loss of discriminative power is strictly local; there is no general loss, *no single faculty*, of the power of discrimination. We conclude, then, that there are numerous separate factors involved in the different kinds of discrimination. We infer that improvement in the

factors involved in one kind of discrimination by no means implies improvement in the factors involved in other kinds of discrimination. In short, we see definite reasons for suspecting the *a priori* truth of the doctrine of formal training.

Thus, instead of arguing, from naïve experience or from false psychological theory, that we have a faculty of this, a faculty of that, and that consequently we only need practice in one instance of the exercise of that faculty for the improvement thus gained to be transferred to all other conditions under which that faculty is exercised—in place of this attitude we must inquire by actual investigation, not only under pathological but under normal conditions, we must discover what kinds of ability are closely related to one another, and to what extent the effects of practice are transferable from one to another kind of mental work.

I would sound one or two warning notes. In the first place, in receiving the reports of investigations and in conducting investigations yourselves, never lose sight of the individual. The one important lesson of psychology for pedagogy concerns the importance of individual differences and the worthlessness of averages. Always suspect an average result. Treat an average figure as having that force, that warmth of intimacy, with which you would receive for your consolation or guidance the information that the average life of an individual is, say, thirty-three years. Look to the individual differences which an average or a coefficient of correlation hides under cover of its specious, but blurred, simplicity. It is true that as teachers you are concerned with children *en masse*, and that you ask for practical suggestions for *class* work. But the highest interests of the best teacher must always centre in the study of children as individuals. Therefore, when you meet with a figure giving, for example, the average improvement which thirty children, after practice at dividing short lines, are able to transfer to the subsequent division of longer lines, ask yourselves the inner meaning of this figure. What are the individual differences among the children? Are some children capable, while others are incapable, of carrying over the practice effects? Or do all the children in a very moderate degree carry over the practice effects? If only some children are so capable, while others are incapable, is it because the capable children are able to abstract the elements common to the two tasks? Can they improve even if they are unaware of the common elements? Do they fail to improve even if they are aware of the common elements? Are some too weary of the practice to benefit by it on a single subsequent occasion? To answer these questions, you must have recourse to the individual children. If you are unable to obtain introspective data from children, you must for guidance and suggestion repeat the experiments on adults, and with due caution apply your results.

Secondly, I would ask you to be moderate in

your conclusions. Do not accept the common dictum that the faculty psychology is dead. It is only the old faculty psychology based on naive experience and *a priori* reasoning which pedagogy and psychology have battled to kill. Scientific inquiry is certain to lead to the discovery of plentiful relations and connections between the different forms of mental activity. It is true that the faculty psychology which we may hope to establish in the future will bear hardly recognisable resemblance to its prototype of the past. But do not, on the basis of a handful of experiments, often heroic in their aims, yet fraught with the greatest difficulties as regards method, be led to decry too indiscriminately all the teachings of the past. Do not be led from an extreme based on the untrustworthiness of *a priori* evidence to the other extreme based on insufficient scientific inquiry. Be moderate, for example, in your deductions from the conclusion that the mind consists of a number of subsidiary functions. In a sense that is true, but we have yet to learn how these are connected together. One thing I would urge in conclusion is certain, that we should be wrong in supposing that the mind is divided into a series of innumerable water-tight compartments totally independent of one another. Were it so, the fundamental characteristic of the organism, τὸ ἐναποιοῦν, would vanish.

MEMORY AND FORMAL TRAINING.¹

By Dr. W. G. SLEIGHT, M.A.

Lecturer in Education, L.C.C. Graystoke Place Training College.

THE doctrine of formal discipline asserts that mental power developed in one subject is usable in any other. The mind is conceived as consisting of unitary powers called faculties, such as memory, observation, judgment, and others, which undergo development when used upon any material requiring their use. It is thought, for example, that constant practice in the memorising of the multiplication tables makes it possible to memorise poetry or dates with a facility equal to that acquired in the memorising of the first-named material. Many a school exercise has been retained solely because it is said to be of great disciplinary or formal value in training the memory or some other so-called faculty.

Until some years ago this doctrine was universally accepted. Recently, however, doubt has arisen; doubt as to whether, for example, the study of Latin does train the memory for all other material; or whether much memorising of poetry will help us to remember better the names of the children in our classes, or the order of that puzzling genealogical table supposed to make clear the rival claims of the Houses of York and Lancaster.

My own experiments did not attempt to solve such special problems. They were nevertheless con-

cerned with memory in particular, and sought to ascertain whether practice in memorising one special kind of material had this disciplinary value, and whether a "transfer" or "overflow" of power took place when memorising other and different material.

In all, nearly one hundred children were tested, belonging to the sixth standards of three Council Schools. Ten different memory tests were first given, then a long period of practice, followed by a second series of ten similar tests; then an equally long second period of practice, and finally a third series of tests. The main problem was therefore to determine to what extent the practices had improved the second and third test series.

The tests included exercises in memorising verse, prose, dates, consonants, nonsense syllables, the gist of prose passages, &c. After the first series of tests, the children were divided into four groups of equal ability, one of which received no training; of the three others, one practised during a long period the memorising of tables, another verse, and the third the gist of prose passages. For the purpose of giving the second and third test series, these four groups were reunited, the results of each group being kept, however, separate.

The results in the last two test series obtained with the unpractised group were taken as the standard of comparison. To be certain that any improvement made by the three practised groups was due to the special practice work, the improvement had to be greater than that made by the untrained.

It is impossible in this short paper to do more than mention the fact that a similar investigation was conducted with two classes of training college students, with similar results, reinforced and made comprehensible this time by introspective work.

Briefly the results were as follows:

(1) There was a general improvement in all the tests, by both trained and untrained. This would be due chiefly to the effects of "direct" practice; that is to say, each set of tests served as "direct" practice for the remaining series.

(2) There was, however, no general improvement of trained over untrained. This is the vital fact, and so far as memory is concerned, it proves, in a way which no *a priori* theory could, that formal discipline is a myth. Out of ninety tests in which the trained could have shown superiority over the untrained, we find only ten which give any trustworthy indication that the practice exercised any influence upon the tests. The specific training did not improve what has been wrongly called "the memory"; its influence in nine-tenths of the tests was *nil*.

(3) We shall presently examine the ten cases in which some "transfer" of memorising power occurred. In the meantime it will reinforce the main contention to add here that the average value of "direct" training was found to be roughly one hundred and forty times that of "indirect." We may infer therefore that the man who, to improve his memory for trigonometrical formulæ,

¹ A paper read at the London County Council Conference of Teachers on January 5th.

tries to train it by the memorising of poetry is simply wasting his time.

So far, and assuming that scientific truth has really been reached, the results are in one sense negative and destructive, but of great pedagogic value. We now know that we dare not trust to "indirect" training; that through practice we may become exceedingly quick in learning by heart various tables, without at the same time becoming any quicker in the memorising of verse or of prose; or, to take an example from outside the domain of memory, that the training in quickness of observation given by football may co-exist with a kind of torpor so far as the observation of the facts of nature is concerned. Thus, mental development and education show themselves to be far less simple and manageable than has hitherto been supposed.

Fortunately, with the destruction of the old theory, we find the structure of a new and safer one arising. Let us now turn to those few tests where it was found that the trained showed superiority to the untrained; that is, where the power gained by a specific kind of practice has "transferred" or "overflowed" to other and different material. One of the most important educational problems of to-day is to discover under what conditions this "transfer" takes place. The investigations I have just described seem to go some way towards the elucidation of this question.

There is indeed something in common experience, and even in some experimental results, which has led many to cling to the fallacy of a generalised habit, to the theory of formal discipline; for it is a fact that training in one domain does sometimes tend to spread to other domains; that the expert boot-cleaner may thereby become a better window-cleaner; that the child trained to obey his teacher may thereby acquire the habit of obeying his parents too; or that accuracy acquired in arithmetic under one teacher may, as a result, function in dictation or grammar under another teacher.

Under what conditions does a highly specialised mental process thus become serviceable in other processes? Is it completely explained by the fact that two exercises have common objective elements? I think not; and for the following reasons:

(i.) There are probably common elements in almost all mental processes, but the present experimental results show that transfer seldom occurs.

(ii.) The investigation also shows that some common elements of material, which have hitherto been regarded as especially useful for transfer, do not operate in this way. For example, there appeared to be no usable relation between verse and prose.

(iii.) Common elements in the method of presentation may also be ineffective, as when tables and verse are both presented auditorily.

(iv.) Even common elements in the method of learning are often inoperative for "transfer." It is true that such common features are occasionally effective in aiding the memorisation of another

subject-matter, as, for example, when training with "tables" produced by means of rhythm, a great improvement in the memorising of nonsense syllables. Some method-elements may, however, be entirely inoperative.

To sum up, the theory of the common element is, by itself, no solution at all. The most one can say is that wherever "transfer" of power occurs, there we shall find, if we search carefully enough, common elements which have been used consciously or unconsciously to establish connection between the two processes and make transfer of power possible. We shall therefore have to distinguish between common elements and *usable* common elements.

Of what nature are these usable common elements? My own experiments suggest very strongly two things: first, that similarities in material and in method of presentation are of inferior value; secondly, that the similarity of importance, or, in other words, the usable common feature, is to be found in the "form" or method of learning.

So far as memory work is concerned, it is not easy to ascertain which are the concrete usable elements of method. Common sense has so often misled us that we dare not trust to it alone. We must depend upon experimental and introspective research to tell us, first, what are the best methods of memorising certain typical material, and, secondly, to what other intermediate material such methods are applicable. By thus laying stress upon or directing the child's attention to method and its application, the possibility of "transfer" may be greatly increased. For example, in mechanical memorising work, such as lists of all kinds, dates, and tables, the teacher should encourage rhythm, which produces a highly distributed kind of attention. In the memorising of sensible material, such as verse, prose, or definitions, logical analysis of the matter, giving rise to a very concentrated attention process, should be used, and for two reasons: Thought-links greatly aid this kind of memory work. Repetitions, perhaps as few as three or four, soon become mechanical, thoughtless; so that to allow a class to repeat poetry is one of the surest means of destroying the appreciation and enjoyment of it.

In some domains outside memory, the process of finding these usable common elements may be easier. Even in a superficial examination some of them are apparent. For example, most teachers would know how to make arithmetic useful to algebra, botany to geology, Latin to French, drawing to modelling. In other cases the connection is not so evident, as, for example, in the two operations of solving an arithmetical problem and making a grammatical analysis of a piece of prose. Let us, for the sake of illustration, select two elements in the method of procedure which may be common to these two exercises:

A clear view in both cases of the facts stated, a definite idea of the sense: that is to say, before the arithmetical solution can be approached,

the facts must be known and understood; before the analysis of the prose passage can be undertaken, the facts or sense must in a similar way be clearly grasped.

The apprehension of the interrelation of the parts, both in the arithmetical problem and in the grammatical analysis: owing to the presence of such usable common elements the general method of facing the one situation might, under certain conditions, be conceivably helpful in dealing with the other.

It is clear that the existence of usable common elements may easily be overlooked by children and adults. It will be, therefore, an essential part of the teacher's function to make the child aware of, and capable of using, these common elements. His procedure must be along the following lines. He must first make his pupils conscious of the elements which compose a particular method. Much of the child's mental work is subconscious, and he needs, as every teacher of arithmetic knows, to become aware of *how* he arrived at the answer.

The child must next be made conscious of the elements *common* to two particular methods, to three, to four, and so on, until the common and usable elements of many particular processes have been generalised to the degree that the pupil approaches, for example, every arithmetical problem in a similar way. When he does this readily, he is said to be "good" at arithmetic. Granted the correctness of our experimental results, we are still far from being able to assert that his reasoning powers have been trained.

An example will best illustrate what I conceive to be the next steps in the training process. Let it be assumed that one important usable common element in the solution of all arithmetical problems consists in close and clear observation of the facts or data before attempting a solution; and that it has become part of the child's nature to respond to arithmetical problems in this way. The teacher has now two important steps to take: He must lead the child to feel and to see the necessity for the same method of approach to other problems outside the domain of arithmetic; such as grammatical analysis, geographical and historical inference, scientific induction, and finally to every subject or part of a subject with which he comes in contact. Thus the general principle of method becomes more and more general, more and more abstract, and may even reach such a degree of abstractness that little or no idea of any subject-matter accompanies it. This is a point, I think, which the Herbartians insufficiently emphasise.

The teacher must give infinite opportunity for the application of the particular principle of method; for example, the principle of close observation of the data, in these *other* subjects, and in every part of these *other* subjects where the principle can be applied. It is said that practice makes perfect; but some of us would be content to fall a little short of perfection if we might omit the practice. But we know now that practice in

a particular sphere is the only means by which we attain *any* power in it, however small. I may have a tolerably clear understanding of the rules of English syntax, evolved through the careful teaching of composition; but I shall none the less need practice in applying these principles in the office itself before I can write a good business letter. Again, most people would rather trust themselves in the hands of the veteran doctor than in those of a beginner, however brilliant. In school, as in life, we cannot assume that any specific skill or habit has been acquired until we have seen the habit actually function; until the principle which the teacher has gradually brought to light has had ample application in the new direction.

Some of these general principles of method acquire a strong emotional accompaniment and then function as ideals—ideals of obedience, duty, self-sacrifice, and so on. We cannot, however, insist too strongly that here, too, the essence of the training process consists less in the idea than in the actual performance; the principle can only be kept alive by constant application of it. The formation of ideals *may become* a useful, but is none the less an incomplete, process.

Having thus tried to show the new conception in its relation to the practice of teaching, I should like to suggest briefly its relation to the curriculum. Hitherto the standard or criterion used in the selection of teaching material has been a double one, namely, the formal and the intrinsic value of the material. This double standard has necessarily led to confusion, and made selection extremely difficult.

The way is now clear to formulate a single standard. "Only that should form part of the curriculum which has a functional value in life"—life present and future, general and ideal; in fact, "utility" is the new standard. The meaning of the word "utility" must, however, be broadened; for we are concerned with utility in a full life, including physical reactions, intellectual pursuits, aesthetic enjoyments, and moral duties. In other words, the work and the leisure of life must both be reflected in the life of the school. It is in this sense that "utility" must be the *one* standard of educational values.

This single standard and amended form of the educational aim is already on the way to general acceptance, although its psychological grounds are still under discussion. There is a growing scepticism as regards the possibility of formal training, and a clearer idea, especially in elementary education, of the new and single pedagogic criterion of material, evidenced by the inclusion in the curriculum of such subjects as manual training, drawing and modelling, nature study; although, as a rule, educational writings still give formal grounds for their inclusion.

On this principle, and tested by our standard, considerable parts of the individual subjects will have to be eliminated. In the struggle between the different intrinsic values, the more valuable will alone survive. In so far, therefore, as

grammar-teaching is utilitarian, that is, in so far as it assists the speech, the writing, and the comprehension of English, we shall retain it. But in so far as the matter is of merely formal value, dealing with such distinctions as case, gender, and person of nouns, with such terms as "strong" and "weak," "subordinate," "enlargement," "extension," &c., it cannot, according to our criterion, be admitted.

The arithmetic which can function in normal life, which is useful,—that, and that only, we must keep, and the child will profit by acquiring a far greater facility in dealing with the ordinary problems of life. All merely formal arithmetic—obsolete or rarely used measures, true discount, stocks and shares, fanciful problems and conundrums of all kinds—must be dropped with the doctrine which gave rise to it.

An immense amount of historical and geographical minutiae must, in the elementary school, be omitted; their bulk should not be allowed to obscure those living facts which function in actual citizen life.

By eliminating this formal material, place will be made for other and more intrinsically valuable material. I should like to indicate from what directions I think the new material may come. It is possible here to mention only a few. Physical education will receive a tremendous extension. When it is understood clearly to be not merely a recreation, not merely a pause in the work of mental development to prepare for another strenuous piece of instruction, but a very real part of training, as important at least as arithmetic, it will take its rightful place in the curriculum.

Speech—the English tongue—will be regarded no longer as of secondary importance. We have been so busy making the child write English that he cannot yet speak it. At present he has hardly begun to enter into the inheritance of the race, in speech, in literature, or in song. It is no reflection upon the teacher to assert that the child, owing to the antiquated demands of formal discipline, possesses altogether inadequately the power to speak good English, and to express his own emotions through the medium of a store of good songs and well-memorised literature. This power must be adequately trained.

To meet the demands of the practical life also, he must be taught to find his place in, and understand more fully the meaning of, a modern world of steam and electricity, of telegraph and telephone.

Finally, we shall lay far greater stress upon training for the leisure side of life, upon the enjoyment of beauty of all kinds. To do this we must enable our children to hear good music, to see good plays, to visit picture galleries and buildings of architectural beauty, to frequent the woodland and the field. Thus some of the beauty of the world will become the child's possession, and the leisure portion of life will be not only protected against vulgarities, but will receive that share of "direct" training which is due to its value in a full life.

TEACHING OF HISTORY BY MEANS OF LOCAL RECORDS.¹

By Prof. F. J. C. HEARNshaw, M.A., LL.D.

Professor of Modern History in Armstrong College of the University of Durham.

IN order to guard against possible misapprehension let me say, first of all, that I do not contend that "local history" as a separate subject should find a place in the school curriculum. By itself it would be too thin, too limited in scope, too trivial. It would fail in one of the prime objects of historical instruction, which is to enlarge the horizon of the mind, to widen the sympathies, to raise the growing interest of the child above the barriers of his own restricted life. I hold, on the contrary, that local history should be kept in complete subordination to general history, and should be treated simply as a means by which general history may be the more effectively taught. I would refuse to allow any separate hour to be assigned to it in the time-table, and would urge, instead, that no hour in which history is taught should remain devoid of its presence and its influence.

As auxiliary to general history, the history embodied in local records and relics seems to me to fulfil the following important functions:

(1) It supplies illustrations and furnishes that detail without which the abstractions of the historical text-book remain unrealised. Text-book accounts of national events are necessarily brief and bare. They lack atmosphere. They convey to the imagination of a child impressions little more vivid than those conveyed by the multiplication table or the axioms of geometry. The feudal system, for example (assuming it to have existed), is little less difficult to grasp and to explain than the binomial theorem (assuming it to be true); but if a child can be taken to a Norman castle one important aspect of feudalism, viz., the military aspect, can, to some extent, be made clear to him, while if the Domesday report upon some manor in his immediate neighbourhood is elucidated, he will at least realise that William the Conqueror was a man and not a mere historic symbol or pedagogic *x*.

(2) It brings history into touch with actual life and with everyday experience. Outlines of general history are forced, by reason of the immensity of their theme, to confine themselves to big men and great subjects. They cannot help it. But the result is that they are "wound too high, for mortal man beneath the sky." Historians like Macaulay who come down from their lofty pedestal and walk the common ways of men have to give up the attempt to portray long epochs and to limit their realistic efforts to a microscopic portion of the span of human evolution. Now local records and relics, when they are available, serve to bring now one fragment of the nation's story, now another, into relation with the history of the village or the borough community. Thus they tend to invest

¹ From a paper read at the North of England Education Conference Newcastle, on January 5th.

not only the related fragments but the whole with actuality. There are few places in England which are not within reach of some historic site, few which have not been associated with some man of more than local note, few whose parish or municipal registers are wholly devoid of reference to events of national importance, few which have had nothing to do with any movement which has affected the kingdom at large. Places such as York and Lancaster, Durham and Newcastle, are so full of historic associations that it is almost possible to write the history of England from the point of view of any one of them. Teachers who fail to use the treasures of localised history neglect one of the most potent instruments by means of which they can make the story of the English nation a vivid and fascinating one to their pupils.

(3) History taught by means of local records and relics has the educational merit of proceeding from the known to the unknown, from the more familiar to the less familiar. In Germany "Heimatkunde," or knowledge of one's native place, forms a recognised basis of instruction. Topography prepares the way for geography; the plan of the village makes intelligible the map of the world; the spectacle of the policeman fits the imagination to comprehend the idea of the distant central government, and so on. Similarly history begins at home, and its sphere is extended until it touches the national history by means of the "Ausflug," or excursion to spots where noteworthy events took place, where relics remain, or where records are preserved. We, in England, would do well to bear the German principle in mind, even if we do not feel ourselves free to apply it with the pedantic thoroughness of our Continental cousins.

(4) Local records emphasise and bring into prominence the social, industrial, and economic aspects of history. The dramatic events of general history are wars and diplomatic conflicts, and the easily-besetting temptation of the historian is to give them somewhat more than their due attention. Of course they are important; but they are not the only things that are important. After all, the State exists for the nation, and not the nation for the State. Politics, with its international and its parliamentary crises, is only a means to an end, viz., the provision and the maintenance of the conditions of the good life for the people at large. Politics loom too large in general histories. From local records they are as a rule totally absent. Thus local records "call a new world into existence to redress the balance of the old." They bear witness to the slow but sure development of the commonalty; they tell of the evolution of popular government; they show the effects of industrial and commercial changes; they speak of birth and death, of love and mortal sorrow, of faith and immortal hope. I do not think, for instance, that I ever realised what the plague meant to mediæval England until I looked through the burial registers of a little Hampshire village and noted how, in bad years, in family after family, mother and baby, father and son, brother and

sister, husband and wife, were carried in swift succession to one common grave.

(5) Local records do for English history one service over and above those which they render in the case of the histories of most other countries. They point the way to a realisation of the process by which the English Constitution has been developed. The local community, rural or municipal, was the original unit out of which the British Empire has been constructed. Communal self-government preceded national self-government; Parliament was at first "a concentration of local machinery"; municipal charters were the model upon which Magna Carta was framed; protection and free-trade were borough problems before they became imperial problems. Local records, therefore, especially in the cases of the larger English towns and cities, not infrequently provide most instructive evidence as to how, on a small scale, in distant days questions were dealt with which have now become of international importance.

(6) Local records provide admirable opportunities for practice in historical research to teachers and to their more advanced scholars. The sort of thing that can be done, even by the intelligent but uninspired amateur, is shown by the summaries, all made to a rigid pattern, which under the name of local history give collected scraps of information respecting manors and villages in the Victoria County History series. Very much more can be accomplished by the zealous student who can concentrate his efforts upon one place, and who can bring to his work both local knowledge and an acquaintance with the course of general history. It not infrequently happens that those who begin by endeavouring to solve some knotty problem in local history end by finding that they have in their hands a clue to the solution of some obscure question or other in the constitutional history of the country.

(7) Finally, the study of history from local records tends to stimulate what I perhaps may be allowed to call local "patriotism." It shows the significance of things familiar; it rouses a lively interest in objects which otherwise might seem common and base; it invests every well-known spot and every existing institution with associations with bygone generations of notable and worthy men; it makes it appear to be an object not beneath the dignity of the modern citizen to maintain the heritage of the past and to transmit it unimpaired to the ages that are to come.

For these reasons, then, I venture to urge teachers and students generally to make full use of such local records as may be accessible to them in their teaching and their study of English history in the assurance that to do so will be to impart new interest and new vitality to their work.

Pitman's Examination Notes on Book-keeping and Accountancy. By J. Blake Harrold. 57 pp. (Pitman.) 1s. net.—This is an excellent little summary of the leading points in the subject, and will be found very useful by students in their final revisions before examinations.

SPECIALISATION IN A SECONDARY SCHOOL.¹

By E. E. KYLE, B.A.

Headmistress of the Highbury Hill High School.

BY specialisation I think we are intended, by those who have arranged these meetings for us, to understand the teaching of a special subject or subjects by a teacher particularly interested and qualified in that subject; and we are intended to contrast this method of working a school with that method which makes each teacher responsible for all the subjects taught to his or her class. But I wish to point out that there is another kind of specialisation—a specialisation according to the age of the children taught, and that some teachers, owing to their temperaments and character, may be particularly suited to teach the children of the lower school, or the children of the middle school, or the children at the top of the school. In fact, we may say, using the time-honoured example of the double accusative, "I teach John Latin," that you may specialise either in John, big John, middling John and little John; or you may specialise in Latin. Throughout I shall bear in mind these two kinds of specialisation, though I intend to deal mainly with specialisation by subject.

My school is an organic whole, and contains children from the age of three, who are in the Kindergarten department, up to the girls in the Upper Sixth, who are going straight to the university at the age of eighteen.

It is because I believe that you only can see, and judge, and treat things as wholes that I believe in specialisation. The teacher who has taught little children, and knows them well, is likely, other things being equal, to make the best teacher of older boys and girls; and only the teacher who knows what he desires for his older boys and girls, and also knows his subject in its advanced stage, can teach the rudiments—I will not say "well," but "in the best and most inspiring way." It is only by regarding a school as an organism, with the work at the top the result of, and depending on, the work at the bottom; and the work at the bottom treated with a view to what is required at the top, that you can do any real, lasting educational work. If you cut up your school into compartments with, as would be necessary in my case, a separate teacher for each of the fifteen years of school life, to take all subjects, what possible sort of organic whole could you have, and what would be the state of each subject in a child's mind at the end of that time? The teacher must teach from the bottom upwards, so as to teach any particular age really well, and must know as much as possible of the subject taught so as to teach any part well, and how can this be done except by specialisation?

The organic life of a school is favoured by specialisation, and is hindered by the one teacher

for all subjects to one class system. The worst disadvantage of specialisation is the fact that you may lose your specialist, and that is, indeed, a loss; all of us who have specialists dread it. Well, if we miss our specialist so much more than we miss a mere form or class teacher, surely it is because when the school loses him, it is as when an organism loses a member, the whole body suffers; whereas, when a class teacher goes, the effect is more like substituting one step for another in a ladder where one has been lost.

It is because I so much desire the organisation of a school by subjects, and not by years of age, with a teacher for each year, that I disagree with the plan of making the secondary school contain children only above the age of ten, and the elementary school contain only children below the age of fourteen. I could wish each school to have its children from the earliest age up to the leaving age, but I am aware, of course, that there are enormous difficulties, social, legal, and economic, against this plan, but I am sure that a high school for girls, with its children attending it from the age of five up till eighteen, can, other things being equal, with a good system of specialisation, become much more of an organism and be much more homogeneous than a boys' school with pupils only taken after ten, and with dozens of contributing preparatory schools, each with its own methods and aims.

But in a large school with ten or more years of school life, no one specialist teacher could teach all classes, say, geography, which subject would in many schools be taught in every year of the school life. Here comes in the other kind of specialist I mentioned above—the teacher who specialises in little John, and to a lesser extent, perhaps, in some subject, or subjects. I think that some mistresses are, perhaps, better suited on the whole to very little children, and I arrange that there shall be a head specialist, who is called head of a department, and that she shall, with myself and her assistant specialists, arrange the whole course of work in, and be responsible for, a subject throughout the school. If she herself prefers to teach younger children mainly, she does so; but also she teaches one or more older classes. But as we have on the staff five mistresses who have been trained on Froebelian lines, and more particularly as teachers of lower forms, these generally specialise, so far as possible, among the younger children, though they are expected to take a share in the work of the upper school too, so as to preserve the idea of oneness and wholeness, and so that the children themselves shall not think that the teaching of the younger pupils has in it anything derogatory. It is beneficial, too, for the teacher—for the disagreeable dogmatic manner so often attributed to the teacher, man or woman, in literature comes partly from perpetual dealing with minds much below the level of one's own.

You must pardon me if, as the result of obedience to intructions, the next part of my remarks sounds egotistical; but, after all, actual

¹ From a paper read at the London County Council Conference of Teachers on January 4th.

experience in an actual school is often the most helpful thing to hear about.

During my first term at my present school our arrangements were as follows: a school of 132 girls of all ages, from three to eighteen, and a staff of eight full-time mistresses and visiting mistresses. Most of these, besides working in the school, had to give time for lectures or demonstrations in a training college for Kindergarten and missionary teachers, which was attached to the school at that time. The mistresses in full time work were all in charge of a form, and the five mistresses in charge of the youngest forms taught those classes practically everything they learned, except class singing and the theory of music. The other three mistresses, though teaching with a bias to one subject each, yet managed to teach a rather large combination of subjects, and the visiting mistresses were the only people, except the music mistress, who really specialised, and they taught respectively Swedish drill, drawing, and painting, needlework, physics, and chemistry in the upper school only; and owing to their being visiting mistresses, they were all giving less time than their subjects ought to have had, and with the exception of the art mistress, in no way really identified themselves with the life of the school; consequently their subjects were not so popular, and the results in them all were not so satisfactory as they might have been.

The only subject which teachers taught, or did not teach as they themselves felt inclined and not according to the demands of authority and the time-table, was Scripture, which was only allowed to be taken by those who took it *con amore*. I myself, though my special subjects are classics and literature, found myself teaching various subjects, or bits of subjects, just to suit the time-table and the work of the rest of the staff.

The two senior mistresses had made a special study—the one of French, the other of mathematics—but both had to take subjects that they were not especially qualified to teach, and the third taught French, though by no means well qualified to do so. In the case of the mistresses who taught their forms everything, it was easy to see at the end of the day much more weariness than would have been the case had there been a change of class; and, in the case of the children, a child was apt to be naughty, and to be labelled so for a whole year, if for some reason or other, probably one of conflicting temperaments, she and her mistress were not congenial to each other. The reverse, of course, happened, too. This was easy for me as headmistress to see and prove by taking the classes occasionally myself. The discipline, too, was not homogeneous: it varied extraordinarily from form to form. There naturally was no uniformity inside the classes, and this again made the work of the already existing specialists very difficult.

I first discovered what each of the junior mistresses could teach best, and, so far as possible, let her specialise among the junior forms in that

subject; but I began the regular work of organised teaching by giving the mathematical mistress the task of drawing up the syllabus in that subject for the whole school, consulting those who were still likely to have to teach arithmetic, geometry, or algebra along with her; and the mathematics mistress became head of her department, and taught as much mathematics up and down the school as she could, though for a time she still had to take German.

All the French at that time was then given to the mistress specially qualified in French, and as she was particularly good at teaching little children, the lower form mistresses at once began to look favourably upon the work of the highly qualified specialists.

The third mistress, who had been partly specialising, and the visiting science mistress then happened to leave, and as the school was growing, I substituted for them a mistress who took nothing but physics, chemistry, and botany, and another who was able to teach well both history and geography. Then one of the junior mistresses left, and I was able to get a new mistress who, though trained for junior teaching, could specialise in geometry and geography in the lower school, of course discussing all schemes, methods, &c., with me and the other specialist.

The school, meanwhile, grew, and when two more mistresses became necessary, I was able to select a German specialist, who took also some English, and a mistress who was a really good history specialist, which subject was taken from the mistress who had been teaching it with geography, the latter mistress filling up with arithmetic. In the meantime, the English literature had been taken by myself and the German specialist, and when I was able to make another change and an addition, I engaged a mistress with a geography diploma, who could also take some English, and as the French had now become too much for one mistress, a lady who could help as second specialist in French, and be mainly responsible for English, was engaged.

I have also now a second science mistress, who makes herself responsible for physics, chemistry, and domestic science, thus leaving botany and nature study to the other. There is a commercial mistress, who takes commercial arithmetic, book-keeping, shorthand, and typewriting, and makes suggestions as to the work the other specialists do in French, German, English, and economic history, with the commercial class. We have visiting mistresses who give us practically all the time we want for gymnastics and needlework, and who teach up and down the school, and are thoroughly identified with its life.

That leaves us with a mathematics mistress, a French mistress, two science mistresses, a history mistress, a commercial mistress, and the art, music, needlework, and gymnastic mistresses teaching nothing but their respective specialities, while we have a geography and French and German specialist, who help with English as well as their subjects, one of them organising that sub-

ject, and among the junior mistresses one is hand-work specialist, as far as it is required in the school, and helps with some senior needlework, and they specialise between themselves in the five junior classes, which include two Kindergarten classes in geography, taking, as form mistresses, English, history, and arithmetic. I may say here that there would be still more specialisation in those lower forms were it not that the school is now working in three separate houses, and we cannot have the constant crossing of the road and consequent waste of time which more specialisation would involve.

I think, too, that there is some advantage in letting a mistress of the juniors see rather more of her class than she would if she only taught in one or two special subjects, and was responsible for its registration order and conduct. There is the further conflict between the upper and lower school, in that the lesson periods vary in length, the lower school often being best served by a half-hour lesson, while the senior girls may, in some subjects, require as much as an hour, or even an hour and a half.

No child comes into contact with fewer than five different teachers a week, and the upper girls may have as many as eleven different mistresses; and this coming into contact with many developed minds I think to be of the utmost importance for the future life of the child. After all, much of our success and happiness in the world depends on our power to "reckon up" and deal with various personalities; and the regular contact, day by day, of the child with several types of mind is important for its future social life, while the fact that it is taught by only those who are enthusiastic for the subject will ensure that the time which is favourable in each individual case for the ripening of special talent, in any particular subject, will not be passed over, or the taste be stifled in the birth, owing to poor or indifferent presentation of the subject. The results in the work, discipline, and organisation have been excellent.

If a subject is weak, it is easy to see where the fault lies, but as the mistresses teach only what they are really well qualified in and love, it is rather a case of apportioning fairly the claims of each specialist to time, apparatus, library books, than of urging her on; and no subject becomes a Cinderella with the girls, as under the class system. I personally am relieved of much work that a headmistress cannot do satisfactorily, and the heads of departments taste of the joys of responsibility and of dealing with their colleagues in a more interesting way. Correlation of subjects is made easy, as each set of specialists consult the schemes of all other sets, and, being specialists who have gone far in a subject, they are usually aware of the relation of their subject to others, and there is more real discussion of the methods of teaching a subject than before. There is much less waste of time and mental energy on the part of the teachers.

The discipline is much better, as friction

between certain pupils and a teacher, not perhaps quite suited to them, is lessened by the frequent change; and the children develop a feeling of class *esprit de corps* which, as each special teacher is also a form teacher, makes them unwilling to appear disadvantageously to any teacher. Further, the questions of class discipline, rules, and regulations are more discussed at the staff meetings, so as to ensure uniformity, and there is, as I said before, an organic feeling which it is very difficult to obtain under the class teacher system. I have found it fairly easy to arrange that each form mistress teaches her own form at least once in each session. She also has a period with them before prayers. She settles them in after recreation, and sees them off at the end of the morning. She also sees all notes about the children in her class, discusses them with the rest of the staff, and really is felt by them to be a person to be referred to in all general difficulties.

As to the organisation (with the exception of the time-table, which, once you have specialisation at all, is always a difficulty), it is, of course, much easier than under the class system, as each subject is under its own responsible head.

AWARDING OF SCHOLARSHIPS.¹

By C. WILLIAMS,

Secretary to the Northumberland County Education Committee.

DURING the past twenty years scholarships have been offered in the county of Northumberland, as in other areas, to enable boys and girls to proceed from elementary to secondary schools. The examinations utilised for the award of these scholarships have been modified from time to time, and we have tried with more or less interesting results various experiments. Last year the Education Committee decided to adopt a plan with two objects in view—(1) to give the head teachers in elementary schools a definite influence in connection with the award of scholarships; (2) to provide an examination test which would come well within the scope of the ordinary work of any efficient elementary school. It may be of interest to place particulars of this plan before the conference in some detail. In order that the plan may be intelligible it is necessary to assume the division of the county into half-a-dozen secondary school areas. That is to say, the secondary schools in towns such as Alnwick, Berwick-on-Tweed, Hexham, and Morpeth are regarded as serving extended rural areas containing a large number of elementary schools. In each area we have what is termed a local examination board constituted as follows:

(a) Two members appointed by the local education authority.

(b) Two members appointed by the governors of secondary schools.

¹ From a paper read at the North of England Education Conference, Newcastle, on January 6th.

(c) The headmaster and headmistress of the secondary schools.

(d) Two representatives of the teachers in elementary schools.

The Education Committee offered about 140 scholarships for boys and girls under thirteen years of age, which were allocated to the different secondary school districts. The head teachers of elementary schools were invited to submit lists of candidates in order of merit, and having regard to the ability, character, and suitability of the different candidates, were requested to assign marks on the following scale:

Good average candidate, from 20 to 30 marks.	
Very good	30 to 40
Excellent	40 to 50

The candidates so nominated numbered 935 (503 boys and 432 girls), and were required to enter for an examination test conducted at district centres by the county as follows:

Subject.	Time allowed.	Maximum marks.
Arithmetic	1½ hours.	100
English composition	1½ "	100

Copies of the papers are appended.

Candidates who obtained not less than 50 marks both in arithmetic and English, or a total of 110 marks (provided not less than 40 marks were obtained in either subject), were then credited with the marks assigned to them by the head teachers of the elementary schools. It may be of interest to note that of the 935 candidates, 246, or 26·3 per cent., reached this standard.

After adjusting the marks on this basis, lists were prepared for the different secondary school areas, showing the candidates—with particulars of their marks—in order of merit. Those who were found to have obtained about two-thirds of the maximum, *i.e.*, 50 + 200, were regarded as having reached scholarship standard. The boys and girls so qualified, or, where the number was largely in excess of the scholarships available, a proportion of them, were interviewed by the local examination boards. At this interview the board was entitled to increase, by not more than 25, the marks of any candidate, and to make recommendations to the county committee for the award of scholarships.

This plan, it will be observed, gives the candidate who reaches a fair standard in an examination, which cannot be regarded as too exacting, the benefit of a certain number of marks which his teacher, or teachers, consider he merits. It also assigns a definite value to the personal interview of the candidate with members of a board consisting of teachers—elementary and secondary—and laymen. On the whole the plan worked well. The order of merit assigned to the different candidates by the head teachers of the elementary schools was, as a general rule, confirmed by the marks awarded in the examination; although it must be admitted a pupil was sometimes classified as "Excellent" by the head teacher whose work in the examination far from justified that description. Regarding the marks given by the local examinations boards, very few instances occurred

where the boards considered it to be necessary to disturb the "order of merit" in the lists placed before them, and where it was necessary to do so sufficient reasons were given for their action.

As to the renewal of these scholarships, it is the practice in Northumberland to rely solely on the reports of the headmaster or the headmistress of the secondary school until the pupil reaches the age of sixteen. At that age, if further renewal is desired, the committee requires to have some information as to the career which the pupil wishes to follow.

Regarding the award of scholarships other than those to enable children to pass from elementary to secondary schools, I am not, I think, in a position to offer any useful observations. The number of candidates coming forward for the few scholarships tenable at university institutions offered by the Education Committee is not large, and the practice is to consider each case on its merits.

May, 1911.

COUNTY OF NORTHUMBERLAND EDUCATION COMMITTEE.

ARITHMETIC.

Time allowed—One hour and a quarter.

All working must be shown in the Examination Book.

No other paper may be used.

- 1.—If one dozen books can be bought for a sovereign, how many books can be bought for £18 8s. 4d.?
- 2.—Make out and show how to receipt the following account: 42 ducks at 5s. 9d. per couple; 13 turkeys weighing 12½ lb. each at 1s. per lb.; 2 dozen fowls at 5s. 6d. per couple; 90 eggs at 10½d. a dozen.
- 3.—A farmer had two fields, one containing 25 acres 1 rood 20 poles, and the other 17 acres 3 roods 30 poles. State in square yards the difference between the two areas.
- 4.—Add together $5\frac{3}{4}$, $6\frac{1}{4}$, and $7\frac{1}{10}$, and divide your answer by the difference between $6\frac{2}{3}$ and $3\frac{1}{2}$.
- 5.—£0 18s. 9d. is charged for 3·6 yards of velvet. How much will be left out of £10 after paying for 32·88 yards of the same kind of velvet?
- 6.—Two trains meet, one 130 yards long going at the rate of 60 miles an hour, and the other 222 yards long going at the rate of 40 miles an hour. How long will they be in passing each other?
- 7.—I sell an article for 6s., by which I lose 10 per cent. Find the prime cost and the selling price to gain 2½ per cent.

ENGLISH COMPOSITION.

Time allowed—One hour and a quarter.

- 1.—Write a short Essay on one of the following subjects:

(a) Gardening.	(c) The Census.
(b) Cooking.	(d) A Shop Window.
- 2.—Write in your words the meaning of the following stanza:

"Land of our Birth, we pledge to thee
Our love and toil in the years to be;
When we are grown and take our place,
As men and women with our race."

- 3.—(a) Is it correct to say "He has went and done it" or "He went and done it," or are both incorrect? Give reasons for your answer.
- (b) Correct the following, stating the reason of the correction in each case:
- I will try and come.
Fortress after fortress were taken.
Grammar should teach us to speak proper.
- 4.—Explain the meaning of any FOUR of these words, giving either an example or an illustration of their use: *abstemious, amateur, buoyant, dialogue, eery, laity, memento, parable, plateau, sarcastic, symptom.*
- 5.—What is the meaning of the proverb "A miss is as good as a mile"?

PERSONAL PARAGRAPHS.

TWO new inspectors have been added to the secondary schools inspectorate of the Board of Education. Mr. W. Gannon, of the Woolwich Polytechnic, has been appointed a staff inspector. At conferences and on committees he has impressed me as a man severely practical, impatient of mere talk, who himself seldom speaks, but, when he does, he has something to say well worth hearing. Mr. J. A. McMichael, the other addition to the inspectors, is a graduate of London in both Arts and Science. He was educated at Manchester Grammar School and Owens College, Manchester. He was the headmaster of the City and County School, Chester, and designed the Harris improved theodolite for practical geography, surveying, and practical mathematics.

* * *

MR. J. K. WILKINS is to succeed Mr. McMichael at Chester. He is thirty-four years of age, took his B.A. at Oxford in 1889 with second-class Honours in Natural Science. He obtained a First Class in the examination for the teachers' certificate after spending three years at the Oxford Day Training College; he is also a graduate in Science of London University. His experience extends over twelve years, all spent in Manchester—four at the Central Organised Science School, and eight at the Municipal Secondary School.

* * *

AMONG the guests at the dinner of the Old Exonians Club, on January 12th, was the new headmaster of Exeter School, Mr. E. T. England. He was formerly a master at Marlborough, and, on leaving there, held the headmastership of King Edward VI. Grammar School, Bury St. Edmunds, for four years. He entered upon his duties at Exeter at the beginning of the current term.

* * *

THE vacancy thus created at Bury St. Edmunds has been filled by the appointment of Mr. B. S. Richards. He was educated at Honiton and New College, Oxford, where he took a Second in Mods and a Fourth in Greats. He has been a member of the A.M.A. since 1901, and for the last six years has been a master at Bradford Grammar School.

DR. ROUSE seems ubiquitous. He took part in the discussion of the Assistant Masters' Association upon examinations; at the meeting of the Headmasters' Association he spoke on the oral teaching of Latin; letters from him on classics and the average boy have recently appeared in the correspondence column of *The Times*. The amount of work he did before becoming a headmaster astonished many of those with whom he came in contact. While at Rugby he added to his scholastic, literary, and university work the secretaryship of the Assistant Masters' Association. Last summer Dr. Rouse conducted a remarkably successful vacation course at Bangor in the oral teaching of Latin, the results of which were described in *THE SCHOOL WORLD*. Dr. Rouse is a member of the Modern Languages Association, and is also University Teacher of Sanscrit.

* * *

THE most prominent figure at the annual meeting of the Assistant Masters' Association in January was that of the retiring chairman, Mr. A. A. Somerville. As the report which he presented showed, the Association has made great strides during his year of office, and the increase in the membership and in the prestige of the Association appear to Onlooker to be due largely to his statesmanlike conduct of its affairs. His attainments are many and varied; at Cambridge he took mathematical honours; he has written a French Grammar, and edited a number of French class books; he is joint author of a book on geography. At Eton he is head of the Army Class, a house master, and was Honorary Lieutenant-Colonel of the Cadet Corps.

* * *

THE chairman of the Headmasters' Association for the coming year is Dr. Spenser, the headmaster of University College School, over the destinies of which he was presiding at the time of its removal from Gower Street to Hampstead. From the Nottingham High School he went to St. John's College, Cambridge, as Foundation Scholar and Goldsmiths' Exhibitioner. His experience of schools extends to Glasgow, Edinburgh, and Inverness. He is a man of great energy, who is accustomed to express his opinion fearlessly and emphatically. We may expect that, under his presidency, the deliberations of the headmasters will be less dull than those of educational bodies are wont to appear to Onlooker.

* * *

MR. CARY GILSON, the headmaster of King Edward's School, Birmingham, was a Haileybury boy, who, after taking Classical Honours at Cambridge, returned to Haileybury as a master; three years later he went to Harrow, where he remained until he was appointed to the headmastership he now holds. Since he has held office a generous pension scheme has come into force in his and other schools under the same governors. From this fact and the part he has taken from time to time in educational politics, he has been regarded

as a real friend to assistant masters, hence the disappointment at his contribution to the discussion on pensions for teachers in secondary schools at the Headmasters' Conference in December last.

* * *

THE new headmistress of the Kidderminster High School is Miss Y. G. Raymond, B.A.; she was formerly scholar of Newnham College, Cambridge, and science mistress at St. Paul's Girls' School.

* * *

A STORY of the heroism of a teacher comes from Wales. Miss Sarah Howells, of Ynysawdre Council School, risked her life in attempting to rescue a boy whom she saw struggling in the flooded river. The current, however, proved too strong for her, and when she was taken out of the water some four hundred yards lower down the stream all efforts to restore animation were ineffective. Miss Howells' nobility of character and the heroism of her action have been recognised by the Welsh Department of the Board of Education and the Glamorgan County Council, and a memorial fund has been opened.

* * *

THE death is announced of Miss Millington, the late headmistress of the Eilerslie Girls' School, Manchester. Miss Millington was a native of Worsley, and was trained at the Whitelands Training College, London. Thence she went as a mistress to a secondary school in Chantrey, near Frome. Miss Millington sat for the first Cambridge Higher Examination for women, and came out at the head of the list, winning a scholarship of £100 a year, tenable at Girton College. She then went to Eilerslie College, under Miss Anderson, whom she afterwards succeeded as headmistress, a post she held until the school was closed in 1903.

* * *

THE cause of education in Cambridge has sustained a great loss by the death of Mrs. L. M. Evans, who retired from the post of headmistress of the Cambridge and County Girls' School in July last. Mrs. Evans's skill as an organiser was shown early in her career, and it is significant that she was the first headmistress of three new schools—Newnham, Park Street, Cambridge, and the County Girls' School, Cambridge. During her long association with the Park Street School Mrs. Evans modelled it into the form suited to that of a higher grade school, and this work was the beginning of a better education for middle-class girls in Cambridge. In 1900 the Education Committees of Cambridge, following the lead given by Mrs. Evans at Park Street, opened the County School for Girls, and the appointment of headmistress was accepted by her. Mrs. Evans will long be remembered for her broad-mindedness, her tact, and sympathetic intuition. She won and kept the love of many generations of Cambridge pupils, of whom she always spoke as "my girls."

ONLOOKER.

A BELFAST SUPERANNUATION SCHEME.

A SCHEME for the superannuation of the principal and other full time members of the teaching staff and of the administrative staff of the Royal Belfast Academical Institution has been adopted and confirmed by the governors, and is to come into operation as soon as it has been sanctioned by the Commissioners of Charitable Donations and Bequests for Ireland. It is an insurance scheme on a sound financial basis, and is to be worked by an insurance company. The contributions of governors and staff are equal, and are based on "normal salaries." These are, for the principal, £600, for the headmaster of the commercial department, £200, for the headmaster of other departments, £300, for an assistant master, £150. The governors will establish a fund by setting aside each year a sum equal to 5 per cent. of the "normal salaries," and not less than £200; this fund is to accumulate until the interest upon it produces 5 per cent. on the normal salaries.

The contributions of the staff are 5 per cent. of the "normal salary"; the retiring age is 60, and may be extended by the governors to 65. Two policies are to be taken out, the premium on each being 5 per cent. of the annual normal salary. One of these is the property of the master, but is deposited with the governors while he is in their service; the other, in the name of the governors, goes to the master on his reaching the retiring age, or on his being permanently incapacitated. In the event of his death it is to be used, at the discretion of the governors, for the advantage of his relatives. In the case of his removal or withdrawal before the retiring age is reached this policy reverts to the fund.

The governors are to appoint each year a committee consisting of four governors, the principal, and one other member of the teaching staff, and to delegate to it such duties and powers as they think fit.

The following are some of the chief clauses:

The governors shall, out of the general funds of the institution, set aside each year and place to the credit of a fund, to be called "The Superannuation Fund," a sum equal to 5 per cent. of the total "normal salaries" of officers for the purpose of providing superannuation allowances that may become payable to any officers under the provisions hereinafter contained, provided such sum shall not be less than £200 in any year.

The said sum shall continue to be set aside each year until a capital sum has been accumulated from any source to the credit of the fund, the interest or dividends of which shall be equal to 5 per cent. on the "normal salaries" aforesaid: provided that when such capital sum shall have been accumulated the said annual sum of £200 may be reduced to such smaller amount each year as the governors may from time to time decide to be sufficient. All accumulations in excess of the said capital sum may be transferred to the general funds of the institution as the governors may from time to time decide.

At the end of the first term after this scheme shall come into operation in the case of existing officers, and at the end of the first term after the appointment of any other

officer, two policies shall be effected with an insurance company selected by the governors, one in the name of the governors (hereinafter called "A" policy) and one in the name of the officer (hereinafter called "B" policy), each subject to an annual premium payable at such time or times as the governors may direct, equal to 5 per cent. of the annual "normal salary" of such officer, and such policies shall be held on the conditions hereinafter stated. Policy "B" shall in all cases be deposited with the governors subject to the terms and conditions of this scheme, but the governors may require the officer to assign policy "B" to the governors subject to the terms and conditions of this scheme.

In the case of the resignation or retirement of any officer before attaining the age fixed for retirement on account of permanent incapacity, owing to infirmity of body or mind, to continue an efficient teacher, he shall be entitled to receive such benefit as may be provided by policy "A," subject to such conditions as the governors may attach thereto.

In the case of the death of any officer before attaining the age fixed for retirement, leaving a widow or children, the governors shall in their absolute discretion apply policy "A" or the proceeds of such policy and the income thereof for the use and benefit of such widow and children, or transfer such policy or pay the proceeds of such policy to the personal representative for the use and benefit of such widow and children, otherwise the proceeds of policy "A" shall revert to the Superannuation Fund. Provided that if such officer shall die without leaving a widow or children, but leaving a near relative or near relatives immediately dependent upon him during his life, the governors may, in their absolute discretion, grant such gratuity or charitable allowance to such near relative or relatives so immediately dependent upon him as the governors may, after receiving and considering a report from the Finance Committee, consider prudent and necessary.

In the case of the retirement of an officer on attaining the age fixed for retirement he shall be entitled to receive such pension as can be purchased by the proceeds of the policies "A" and "B," but the governors may, in their absolute discretion, permit such officer so retiring to receive in cash the proceeds or any part of the proceeds of the said policies on such terms and conditions as the governors may determine after considering such representations as the officer may submit to the governors in reference thereto.

ILLUSTRATIONS.—A principal who has been appointed at the age of thirty and retires at the age of sixty years would be entitled under policies "A" and "B" to:

	£	s.	d.
(1) A cash payment of	3,072	0	0
or			
(2) An annuity for life of	280	10	0
If he retires at the age of sixty-five years he would be entitled to:			
(1) A cash payment of	3,930	0	0
or			
(2) An annuity for life of	425	8	0

In the case of a headmaster of a department, other than the headmaster of the commercial department, he would be entitled to one-half the above amounts, and in the case of an assistant to one-fourth of the above amounts.

Longmans' Natural History Pictures. By G. E. Lodge. (Longmans.) 3d. net. per set of eight.—These pictures (chiefly of birds) are reduced from Longmans' Natural History Wall Pictures, and are beautiful examples of colour printing. They deserve a large sale.

RECENT EDUCATIONAL CONFERENCES.

It has become the habit for teachers to begin each new year by meeting together to confer on questions of method, administration, and school management. The first fortnight of January is crowded with educational meetings in different parts of the country, and it speaks well for the enthusiasm and earnestness of schoolmasters and schoolmistresses that, though it means much sacrifice of well-earned leisure on their part, the meetings have been uniformly well attended and have all been marked by the evident desire of the teachers present to learn as much as possible about school work.

It is impossible in the space available to attempt to deal exhaustively with so large a number of meetings; but we are able, owing to the courtesy of many of the readers of papers, to print a selection of the most interesting contributions to the conferences, to give, in another part of this issue, brief accounts of the chief annual meetings of educational associations, and to refer here to other subjects of interest which have been discussed.

ART IN THE SCHOOL CURRICULUM.

At one of the meetings of the London County Council Conference the subject discussed was "Chalk, Brush, and Pencil Work in Elementary Schools." Prof. Selwyn Image, Slade Professor of Fine Art in the University of Oxford, who presided, said those present at the meeting did not conceive of the teaching of chalk, brush, and pencil work in elementary schools as tending to the ultimate production of artists in elementary schools. He deprecated that very strongly. The purpose is to give, as a part of the curriculum of a sound general education, that particular kind of education which, better than any other, tends to develop observation, facility of hand, and the improvement of taste. These three things are now everywhere regarded as necessary and integral parts of a general education; and the change which has taken place in that respect within a comparatively few years shows that an advance is being made, not only in the practice of education, but in the idea of what education should be. Drawing, in the proper sense of the word, can be carried on in more ways than one. Provided that the teachers keep on their guard against showiness and fantasticalness in their pupils' work, and are determined to insist upon reasonable accuracy, whatever experiments they make, with whatever instrument, can only be for good.

Sir William B. Richmond, K.C.B., read a paper at the North of England Conference on "The Place of Art in a Liberal Education." The reasons, he said, why the fine arts should take their due place in a liberal education may be grouped under four heads: That all countries which have reached a high civilisation have treated art as a necessary part of training; that the qualities which art elicits and stimulates are essential to a fully developed character; that all exercise of skill is good in itself, and doubly good when used in the service of beauty; that we cannot live without ideals, and that of all ideals the artistic is the most concrete.

"I am Utopian enough to believe," he observed, "that in time to come, and not very far hence, if we use the interval wisely, we shall find that the majority of men are born craftsmen, and that there are a far greater number of latent designers than we imagine. Skill arrives by practice. It we seek to inspire the highest intelligence, we shall probably find it already existing; we can then inculcate observation, and, with care, promote it until it becomes almost instinctive. We may find the inventor in the labourer, and the labourer in the inventor also. There

is a right and wrong in matters of taste; the laws which govern them are not complicated, and these laws can be taught. If we teach them we are not only giving skill its true inspiration, but we are helping to form character on its most sensitive side. A high ideal of beauty engenders nobility, and is the reverse of weakening to a nation. The arts conduce to the pleasure and instruction of mankind; hence they are in the highest sense useful. Therefore the arts and crafts should receive like homage with science. No man can be said to have attained an enlightenment which is at the disposal of education unless he is conversant with the history of the arts and with the part that they have played in the intellectual and emotional elevation of the human race."

THE TREATMENT OF BACKWARD CHILDREN.

The problem of the backward child was exhaustively discussed at one of the sessions of the London County Council Conference. The chairman on this occasion was Sir James Crichton-Browne, F.R.S., who insisted upon the need of adequate nutrition in the case of backward children. Hitherto, he said, backwardness has been dealt with mainly by methods of education. He did not underrate the value of these, but urged that very often they are futile by themselves, and might have availed if they had been combined with medical treatment. It cannot be too strongly impressed on teachers that they should be on the lookout for individual children who exhibit backwardness or any mental peculiarity, and should bring them specially under the notice of the medical officers; and it cannot be too strongly impressed upon the school medical officers that all such children should be subjected to special examination, so that their mental capacity may be gauged and any morbid conditions associated with their mental abnormality discovered and treated.

One condition that is responsible for backwardness, by checking brain growth or degrading brain function, is impaired nutrition, which is a frequent cause of temporary backwardness, and may, if continued, permanently dwarf and damage the brain. It is sometimes said that the brain is the last organ to suffer from deprivation of food. Teachers must not believe that. The speaker's own conviction is that it is the first to suffer. It may, under starvation, retain its plump contour and show less wasting than other organs, but what of its delicate machinery within?

Sir James Crichton-Browne has been proclaiming for thirty years that feeding comes before education. He is deeply convinced that it is culpable folly to require brain work of children that are underfed, and that much backwardness in school children is attributable to insufficient nourishment during the school period. To tax the growing brain that is ill-nourished is a sure way to stir up into activity any inherited tendency to disease that may be latent in it, and to diminish its power of resistance to those pathogenic bacilli that are always prowling about seeking whom they may devour. The evil effects of brain work during brain starvation are often displayed, not at the time, but in later years, especially during adolescence. Just so long as we have crowds of badly nourished children—badly nourished not merely on account of poverty, but as a consequence of domestic neglect, ignorance, or extravagance—so long will there be unnecessary backwardness and much of that crass stupidity that is a weariness to the teacher's soul. Well-devised instruction in cookery, and in the best way of laying out the family budget and stocking the family larder, will do something to diminish the number of backward children.

Happy is the child who is neither backward nor for-

ward, but in the golden mean, who slowly and steadily climbs to the summit of its powers, and can, with rude health, a clear head, and an even temper, encounter all the chances and changes of this troublesome world.

ORGANISED PLAYGROUNDS.

One of the subjects debated at the Congress of the Educational Institute of Scotland was organised playgrounds and play-centres. Mrs. Humphry Ward gave an address, in which she said play-centres meet the need of amusement and occupation after school hours. They satisfy the child's individual hunger for making and contriving; they strengthen the will-power and also satisfy the natural desire for society; they give the neglected children of the cities something as near home as the conditions permit. She emphasised the necessity of the play of the children in the playgrounds being supervised and superintended. In New York about £80,000 is being spent annually on organised play. There are at present in the United States 500 cities maintaining playgrounds or conducting an active campaign to acquire the same. In this country almost nothing is being done so far as the municipalities are concerned. In connection with the voluntary movement there are now seventeen centres working in London, each centre being under the direction of a paid superintendent. The centres are open to boys and girls from three to fourteen years of age on five evenings a week, and on Saturday mornings. Why should we not have play-centres in all our great cities? In London there are fifty organised playgrounds open, and last year there was a total attendance of 1,600,000 boys and girls.

EDUCATION AND PRACTICAL LIFE.

At the North of England Conference a paper was read by Sir Hugh Bell, Bt., on "Education and Practical Life." In the course of his paper he said, in his view, education is not concerned with teachings on matters of opinion. At the same time, it is not a teaching of mere facts. We may ask why it is we want to educate when everything seems so uncertain. It is just because of this uncertainty that we want to train the mind which has to deal with the external world by education, to teach each one to use the implement he possesses better and better for the purpose for which it appears to be destined. To cram it with "facts" which may or may not be relevant will rather harm than help. If we turn to the debates in Parliament on an educational question we shall be struck with the fact that all hinges on what should or should not be taught in the schools on a very abstruse metaphysical question about the answer to which the world is still hopelessly divided. We should give the people a real education which will not try to make men into encyclopædias, but will send out alert-minded citizens fitted to bear their part in the complicated questions which throng upon them for solution. The clear limit of the State's activities and duties is to turn out, as speedily as possible, citizens able within their capacity to discharge the duties of citizenship. To send them forth prematurely is to exhaust their power too soon. We must try to give instruction which will stand the strain of those two fatal years which now elapse between emancipation from the discipline of the school and the shouldering of the discipline of life. It is perhaps a dream of Utopia to hope that some far-seeing statesman will raise the school age to sixteen. Could that be done, the productive capacity and, with it, the physical well-being of the people will within a generation be increased out of all proportion to the immediate loss which will be sustained.

CLIMATE AND CHARACTER.

At the annual meeting of the Geographical Association, Dr. Parkin, the newly elected president, referred in his address to the influence of geographical position upon the characters of peoples of various countries. He said the occasional fall of the temperature to 35° below zero in Canada is one of the great assets of that Dominion. It rules out a black population, and thus prevents the great difficulty which the British race has to face in South Africa, which also threatens to a certain extent in Australia and New Zealand; whilst it also excludes the flood of Mediterranean emigrants which has flowed in millions across the centre of the American continent, it brings the strong northern races. As the result of its geographical position, Canada must be the home of one of the great strong northern races of the world. Even more important is the effect of the Canadian climate upon the Englishman of the "submerged tenth" type. Nature there takes him, as it were, by the scruff of the neck and teaches him that unless he shows industry, foresight, and prudence, and provides himself with a roof, food, and fuel, he will die. The result is that within one generation that type of man gets his backbone strengthened and becomes a good citizen. The British nation, he continued, has wasted almost more from ignorance of geography than it has in building up its enormous war debt. He instanced, as an example, a railway which was thrown across part of a continent in an impossible place for settlers, whereas the acquisition of geographical knowledge would have shown that, within a hundred or two hundred miles, the line might have sent a stream of population flowing through a fertile belt. Alluding to the bearing of geography on commerce, Dr. Parkin spoke of the necessity which has arisen suddenly for finding areas suitable for cotton-growing within the Empire. A great American authority said recently that it is quite possible that within our lifetime the British Empire will be supplying itself with cotton. Dr. Parkin also remarked that thousands and thousands of our soldiers have perished simply through the absence of a knowledge of geography.

ASSOCIATION OF PUBLIC SCHOOL SCIENCE MASTERS.

THE annual meeting of the Association of Public School Science Masters was held at the London Day Training College, Southampton Row, on January 10th and 11th. On the first day Mr. M. D. Hill, Eton, opened an interesting discussion upon the value of chemistry and physics as preliminaries to the study of biology, his own view being that it was very small. He urged that the tendency during the past few years had been to make school biology more morphological and less physiological, consequently the pupils had less need for chemistry and physics than was formerly the case. Mr. A. Vassall, Harrow, on the other hand, maintained that, although the boy whose future study would be biometrics required different training from one who would become a physiological chemist, yet a foundation of chemistry and physics should be given to both; he lamented there were so few botanists who knew sufficient physics to be able to explain the physical processes of plant life. Mr. E. I. Lewis, Oundle, urged that plant biology should be taught in every secondary school; he stated that the work could be made to consist almost entirely of observation and experiment, both in the class-room and out of doors, and that for junior pupils it made a preparation full of suggestion for the study of chemistry. Subsequent speakers were almost unanimous in urging that it was dangerous to teach science in water-

tight compartments, and that the only way to expand the mind of a beginner was to make no distinction between chemistry, physics, and biology.

A discussion upon the teaching of qualitative analysis was opened by Dr. E. B. Ludlam, Clifton, who advocated the introduction of simple exercises in the identification of substances at an early stage, to be followed later by a more thorough course in connection with lectures upon the metals and the periodic law. Mr. D. Berridge, Malvern, whilst agreeing that the educational value of qualitative analysis if properly taught was considerable, maintained that the subject lent itself so easily to "cram" that it should not be included in any but advanced examinations. The general feeling of the meeting seemed to be that there was a danger at the present time of laying too much stress upon the quantitative side of science when presenting it to young pupils.

The proceedings on the second day were opened by the president, Sir J. J. Thomson, F.R.S., who gave an interesting and characteristic address, in the course of which he deprecated the growing tendency to teach by lectures rather than directly from text-books; incidentally, he mentioned that during the past few years the undergraduates at Cambridge who came up from the public schools had shown a far greater grasp of mathematics than formerly, but that this had been accompanied by a corresponding falling off in their power to read German; it is probable that there were no teachers of modern languages present, otherwise there must have been an animated discussion upon the suggestion that it was more important for a pupil to be able to read a foreign language than to speak it!

Mr. C. E. Ashford, Dartmouth, opened a most valuable discussion upon the place of electrostatics in a science course, the plan he advocated being the postponement of the subject until after voltaic electricity, and that it should then be approached through the latter. At the end of his paper he gave an interesting demonstration of the method he had employed at Harrow of obtaining electrostatic charges from the ordinary supply mains. An animated discussion, opened by Prof. Worthington, F.R.S., followed the reading of this paper, the chief point of difference between the speakers being the educational advantages of the electrostatic voltmeter over the gold-leaf electroscope.

In the afternoon papers were read by Mr. G. F. Daniell upon "Laboratory Examinations," and by Mr. A. Vassall upon "Educational Psychology," both papers giving rise to interesting discussions.

HISTORY AND CURRENT EVENTS.

GEORGE, the second Sovereign of the kingdom of Great-Britain-and-Ireland-and-of-the-Dominions-beyond-the-Sea, has inherited, among many other titles, that which a famous Vizier gave to his grandmother—the emperorship of India. His counsellors have advised him to do what neither of his predecessors in that title could or would do, viz., translate the title into an actual presence. Whereas to the natives of India who could not make the journey to England the Great White Queen was but "a god afar off," George has shown himself to his Indian subjects. The emperorship has become incarnate to them. Hence the significance of the great Durbar of which the British Empire has been thinking these last few months. (We were about to write "this winter," but remembered that this Empire is so scattered that no season name is at any time applicable to the whole.) How does this event connect itself with history? The answer is twofold. The peoples

concerned have different histories, and it is difficult to say which has the greater civilisation. For we are not of opinion that, as we read recently in answer to an examination question, in the eighteenth century "the natives of India were, of course, savages, and had no mind of their own and no honest wills, and they had to be taught."

WHAT history, then, does the emperorship of George and its visual incarnation at Delhi recall to the people of India? India is approachable from two directions, by sea and by the north-west frontier. The latter is that by which it has been invaded by its neighbours, and Indian memory recalls a series of invasions by the followers of Mohammed leading to the foundation of a great empire which dominated almost all the country, that of the great Moguls, as we call them, with whom English merchants had dealings in the seventeenth century. Their chief city was Delhi, and there the Mohammedan emperor lived until the British power which had arrived by sea and had risen on the ruins of that great domination put an end to the surviving phantom. There was a time, some fifty years ago, when British thought tended to destroy that ancient capital (see the reference in Wendell Holmes's "Breakfast Table"). That was when we were apparently, if not really, weak. Now we are strong, and can afford to combine the history of the peoples. There is again an emperor in India, and, though he is not a "Mogul," his seat is Delhi.

SOME of us are old enough to remember that, when Benjamin Disraeli proposed the title of Kaiser-i-Hind, there was much discussion as to the suitability of the term. The word "emperor" and its equivalents had associations, not only in India, but in Europe. We should all know by now the history of the emperorship from the gradual adoption of the title by Augustus Caesar and his successors down to its degradation by the Corsican and the Habsburg in 1804. To Englishmen for centuries it was the highest title of the elected King of the Germans. In theory, it connoted the lay representative of God on earth, corresponding to the Papacy of the Bishop of Rome, God's spiritual vice-gerent; and Henry VIII. repudiated both authorities when he declared in 1533 that "this England is (and had been) *an* empire." In practice, however, it was the title of a monarch whose nobles gradually encroached on his powers until they were practically more independent than many of the princes who lately paid homage to the Emperor at Delhi, and it vanished in the Napoleonic convulsions.

TELEGRAPHY has, for many purposes, practically abolished distance, and, even for letters, India is as near to us to-day as many parts of the Continent were before the application of steam to the means of travel. Yet it was thought desirable, when King George started to visit our fellow-subjects in India, that a regency should be appointed for his kingdom. "Regency"—the word recalls many memories in our history. Was there not *the* Regent (after whom Regent Street in London was called) whose first appointment in 1788 led to such Parliamentary disputes between Pitt and Fox, because the King of Great Britain was always supposed to be capable? Did not the first two Georges appoint regents whenever they undertook their annual visit to Hanover, then as distant as India is now? And we might go on to mention other regencies in English history, called generally protectorships, each with a history attached. "Woe to the nation when the king is a child!" is a saying of which Englishmen on occasions, fortunately rare, have had reason to realise the truth.

ITEMS OF INTEREST.

GENERAL.

THE annual meeting of the Association of Headmasters was held on January 9th and 10th at the Guildhall, London. Dr. H. J. Spenser, of University College School, in his presidential address dealt with the numerous problems in connection with organisation of secondary education, and reviewed in an able manner the chief educational events of the past year. Resolutions were adopted urging that all private and proprietary schools and other educational institutions should be inspected by the Board of Education, and directing attention to the widespread evil of the premature withdrawal of boys from secondary schools, and stating that the association would welcome the adoption of some scheme by which success in the War Office examination for certificate A might count as a subject in such examinations as are usually taken at the end of a school career. The following papers were read: "Music Teaching in Schools," by Dr. Rowton; "The Result of Modern Methods of Geometry Teaching in Secondary Schools," by Mr. F. W. Sanderson; "Reform in the Teaching of Science in Secondary Schools," by Mr. P. Shaw-Jeffrey. Several discussions took place. Dr. Alexander Hill, the recently appointed secretary to the forthcoming Congress of the Universities of the Empire, opened one on the aims and objects of the congress. Dr. W. H. D. Rouse opened another on the teaching of Latin in schools by reading a paper advocating the oral method of instruction, which has been so successful at the Perse School, Cambridge.

THE annual meeting of the Assistant-masters' Association was held at Merchant Taylors' School on January 5th. The newly elected chairman, Mr. S. E. Winbolt, Christ's Hospital, presided. In moving the adoption of the annual report, the retiring chairman, Mr. A. A. Somerville, Eton College, said that two of the chief objects for which the association is striving—the formation of a representative Teachers' Council and the establishment of a national scheme of pensions—have advanced a stage during the year. He spoke eulogistically of what Sir Robert Morant had done for secondary education during his tenure of office at the Board of Education. He gave it as his opinion that when the history of education in recent years is written, "the name of Sir Robert Morant will stand out as that of a great pioneer of progress." Connected with the provisions of the Insurance Act, Mr. Somerville said, there are special reasons why secondary-school teachers can themselves form a benefit society upon a more advantageous basis than the members of other professions. The latest results of a canvass on the subject are that 4,817 were circularised, of whom 1,617 are compelled to insure. Those willing to join are: (a) compulsory, 1,095; (b) voluntary, 775. There is reason to hope for the formation of a strong society to meet the requirements of the Act until the time, which it may be hoped is not far distant, when an English superannuation system for secondary-school teachers will succeed the Scottish scheme.

AMONG the important resolutions adopted were the following: "That this association welcomes the formation of the Teachers' Council, and trusts that it will be a useful instrument in organising and unifying national education." "That this association welcomes the publication by the Board of Education of statistics of salaries in State-aided secondary schools, which conclusively prove the urgent necessity of a superannuation scheme for secondary-school

teachers, and feels deep satisfaction at the progress made with regard to this question during the past year." "That this association deploras the many cases of arbitrary dismissal which have occurred during the past year, following upon the appointment of a new headmaster, and considers that an immediate remedy should be found for so unsatisfactory a state of things." "That the lowest salary paid in any secondary school to an assistant-master should be £150, rising by automatic yearly increments of at least £10 to £300, and then by similar increments of £15 to at least £450." "That, in the opinion of this council, the proposed grant of a large sum of public money to establish a system of scholarships in secondary schools in Ireland should not be considered until the present unsatisfactory position of assistant-masters in such schools has been improved." In the afternoon the Master of Christ's College, Cambridge, Dr. A. E. Shipley, F.R.S., gave an address on "Students in the late Sixteenth and in the Seventeenth Century," in which he referred also to the present position of the teaching profession. A discussion also took place on the relation of examinations to education.

THE annual meeting of the Association of Assistant-mistresses in Public Secondary Schools was held on January 13th at the Grey Coat Hospital, Westminster. Miss E. S. Lees, The High School, Clapham Common, occupied the chair, and Miss I. M. Drummond, North London Collegiate School, was elected president for 1912. In her address, Miss Lees said the association has now affiliated itself to the Workers' Educational Association, the aim of which is to stimulate and to satisfy the demand for education among working men and women. Another new departure has been the attempt to start a new Science Association, as there is no existing association that science mistresses can join similar to those that exist for teaching English, mathematics, and almost every other subject. A record number of mistresses has joined during the year. In a general discussion on the Insurance Act in its relation to assistant-mistresses and pensions and superannuation, Miss Lees said the association is trying to form a benefit society of its own, and has already received a good deal of support. A resolution warmly approving of the movement for the omission of assistant-mistresses from the Insurance Act, in the belief that superannuation would be more suitable, was agreed to. Miss Laurie moved a series of resolutions in relation to pensions, and it was pointed out that though women lived longer than men, statistics proved that women teachers retired earlier. They did so between the ages of fifty and fifty-five. A paper on the need for more definite teaching of European history in schools was read by Miss Berryman, Clapham High School.

As honorary president of the Private Schools Association for 1912, Sir Philip Magnus, M.P., delivered an address at the annual meeting of the association on January 4th. He offered a defence of private schools, and urged that they occupy a useful and special place in our national scheme of secondary education. A place should be found, he said, in such a scheme for efficient private schools, free from State control, and the Board of Education ought to exercise its influence to prevent local authorities from using the rates for the establishment of new schools that compete unduly with existing private schools. It is in private schools that educational experiments can most successfully be made; and they train their pupils in practical pursuits, by means of regulated exercises, to discharge such duties as every citizen may be called on to perform. In this work private schools may occupy a posi-

tion prominently in advance of schools that are State-aided and State-controlled, and may, firmly and permanently, establish their right to be recognised. The example of Germany, which of late has been freely quoted, should, he said, serve as a warning. There is much in German methods which may be usefully studied. But these methods have now been sufficiently long in operation to enable us to see their defects, and to guard us against too closely following them. It must always be remembered that the conditions of life in Germany are very different from those that prevail in this country; and these differences, which in many respects are in favour of our people, should not be overlooked in any attempt to transfer to England institutions which may appear to flourish abroad.

THE annual meeting of the Classical Association was held at King's College, London, on January 8th and 9th. The proposal of a resolution, which was eventually postponed to the next regular meeting of the association, "that it is desirable that Greek should be made an alternative subject of study with Latin in institutions where one classical language only can be studied," led to a very animated discussion. This subject is dealt with in another part of the present issue. A paper was read by Miss H. L. Lorimer, of Somerville College, Oxford, on "Some Notes on Dress in Homer and in Archaic Greek Art," in which she urged that there is no reason to suppose that the Homeric dress of women was all of one type, either Hellenic or Oriental. In the evening following the meeting of the first day a conversation was held at Mercers' Hall, when Prof. Gilbert Murray read a paper on "The Ritual of Dionysus and the Forms of Greek Tragedy." On the second day the Bishop of Lincoln delivered his presidential address, his subject being "Hellenism as a Force in History." The discourse constituted a survey of Greek influence on the thought and civilisation of the world. Prof. F. Haverfield read a paper, illustrated with lantern-slides, on "Roman London." The Master of Trinity, Dr. Butler, was elected president for the ensuing year, and Messrs. Sleeman and Caspari honorary secretaries.

THE annual meeting of the Modern Language Association was held at Birmingham on January 4th and 5th under the chairmanship of Mr. J. L. Paton, High Master of Manchester Grammar School. The secretary reported that at the beginning of 1907 they had 638 members, and at the beginning of 1911 that number had increased to 1,020. The increases this year would be about forty. The president, in the course of his address, said the modern language teacher should be in every respect on a level with his classical colleague, and be as much a scholar in the true sense of the word as any master on the staff. To secure this we must aim at establishing a closer and more intimate connection than at present exists between the modern sides of the university. The modern language teacher is the indispensable instrument of progress. Internationalism is to be the note of the future, just as nationalism has been the note of the last century. The signs of the times are written large; what is to be is clear, but to bring it to birth requires the modern language teacher. What is needful is an education in mutual understanding, and that understanding must begin with the learning of a language. A discussion on "What Command of English should a Child Possess before Beginning the Study of a Foreign Language" followed. Prof. Wichmann delivered an address on the importance of German to an industrial and commercial community. He said that as a result of modern language studies there

exists in Germany a widely spread knowledge of the conditions prevailing in other countries, a sincere goodwill towards them, and a strong desire to live in peace with them. Had not this been the case, he doubted if a few months ago wiser counsels would have got the upper hand of national passion stirred up to fever heat. The German schoolmaster last summer saved the peace of Europe. The study of German will increase the chances of peace, one of the most vital interests any industrial or commercial community can possess. On the second day Mr. C. T. Robert opened a discussion on "The Means at the Disposal of Modern Language Teachers for Keeping in Touch with the Living Language." Prof. Rippmann spoke of the value of the talking machine, and regretted that manufacturers had not yet catered sufficiently for the modern language teacher. Prof. Sonnenschein dealt with "The Study of Latin in the Elizabethan Age."

THE Modern Language Association at its annual meeting this year at Birmingham was entertained at a conversazione by the Cercle Français and the Deutscher Verein. The Cercle Français has a membership of 110; its annual subscription is 3s. for members of the University and 5s. for outsiders. It holds ten meetings a year, one of which is a dramatic evening, at which some of the members amuse their fellows in short plays, both of well-tried authors such as Labiche or of ultra-modernists such as Zamacois. Another evening is called "une soirée récréative," and half of it is devoted to French songs and half to the recitation of *saynètes* and monologues. But the main interest of the Cercle is given to causeries, lectures on modern French literature, and debates. These last are called "discussions contradictoires," and are on such subjects as: "Is it to be regretted that musical comedy and kinematograph shows are so successful?" At each meeting tea is provided, and before the main business of the evening begins there is half an hour's conversation among members, at which French is compulsory. The whole Cercle is guided successfully by Prof. A. Chatelain, the professor of French in the University of Birmingham. It may be asked whether such French and German societies exist in connection with the University of London, and if not, why not?

THE annual meeting of the Historical Association was held at the University of Manchester on January 11th to 13th. At the business meeting on January 11th Prof. A. F. Pollard, professor of English history in the University of London, was elected president, and Mrs. J. R. Green and Dr. J. H. Wylie vice-presidents. It was arranged that the annual meeting in 1913 should be held in London. During the meeting several papers were read. Prof. Ramsay Muir, University of Liverpool, read one on "The Connection between History and Geography." A paper was read by Prof. Hearnshaw, Armstrong College, Newcastle-on-Tyne, on "The Attitude of the Teacher towards Controversial Questions of the Present Day," which was followed by a well-sustained discussion. There was an animated discussion of a resolution proposed by Mr. Hankin, King's College School, Wimbledon, which was unanimously passed in the following form: "That external examinations for girls and boys under sixteen are as undesirable in history as in every other subject." A Congregation of the University was held during the meeting, and the honorary degree of Doctor of Letters was conferred on Prof. Firth, Prof. Lodge, Dr. J. E. Morris, and Prof. Pollard. An address by Prof. Boyd Dawkins, F.R.S., on "Some Points in the Pre-history of Britain," and a long discussion on "The Teaching of History in

Elementary Schools," opened by Mr. F. T. Adkins, president of the Sheffield branch of the association, were interesting features of the meeting.

THE annual meeting of the English Association was held on January 12th and 13th. The report of the executive committee for 1911 states that the membership is now 732, a net gain of 73 members. The ten local branches in England include 600 additional members and 388 associates. The Scottish branch contains 153 full members and 147 associates. A branch has been established in South India with its headquarters at Madras, and numbers 150 full members. The following new officers were elected: Lady Ritchie, president; Mr. A. C. Bradley, vice-president; Mr. John Bailey, chairman of committee; Mr. E. von Glehn, hon. treasurer; and Mr. Arthur Acland, hon. general secretary. Mr. A. C. Bradley gave an address on "The Uses of Poetry." Among papers read during the meeting may be mentioned: "The Teaching of Composition in Relation to the Teaching of Literature," by Miss E. A. Ford; "The Place of English Composition in the Language Scheme of a Secondary School," by Dr. Rouse; "Oral Composition in Upper Classes," by Mr. G. Sampson. The papers gave rise to much useful discussion.

THE annual meeting of the Geographical Association was held on January 13th. The annual report, which was adopted, showed that the number of members is now 962, an increase of sixty during the year. Two new branches of the association have been formed, one at Leeds and one at Chester. The committee of the association has asked the Gilchrist Trustees to give a scholarship in geography to enable some teacher to spend a year in studying the subject. The trustees have agreed to do so, and a small committee, with representatives of the trustees, of the Royal Geographical Society and of the Geographical Association is drawing up the regulations for the scholarship, which will be published in the spring number of *The Geographical Teacher*. Dr. Parkin's presidential address is referred to on p. 67. Prof. Lyde initiated a discussion on the organisation of home work in school geography, advocating the graduating of the lessons so that the cleverest set of boys received the most difficult task. Miss Rickards urged the desirability of encouraging independent work on the part of the elder pupils by making them accustomed to deal with information which they could obtain for themselves from various sources. Other speakers dealt with the combination of geography and English, and emphasised the importance of children expressing by diagram the lesson already taught in school. Prof. Herbertson, presenting maps based on the latest census returns for the world, said that approximately the population of Europe was now 400 millions, Asia between 950 millions and 1,000 millions, Africa just over 130 millions, and America slightly under that figure. Prof. Herbertson also exhibited lantern-slides of typical land forms selected by a committee of the International Congress, and Miss S. Nicholls showed maps and views of typical land forms in the Near East.

THE annual meeting of the Moral Education League will be held on February 13th, at 8.15 p.m., in the lecture hall of the Royal Society of Arts, John Street, Adelphi, W.C., when Mrs. Sophie Bryant, headmistress of the North London Collegiate School for Girls, will deliver an address entitled "The Many-sidedness of Moral Education." It is hoped that the league's president, Prof. J. S. Mackenzie, will preside and deliver a short address.

THE last day for applications to be received for the Common Examination for Entrance to Public Schools

is March 4th. Papers will be sent out on March 12th, and the examinations will be held on March 14th and 15th. Any further information can be obtained from the secretary, Mr. F. Ritchie, Beechview, Sevenoaks.

ENGLISH prospectuses will shortly be issued of the Jaques-Dalcroze Rhythmic Gymnastic College, which has recently been removed from Geneva to Dresden. New and spacious buildings have been erected for the college and its students at the Garden City of Hellerau, a suburb of Dresden. The Jaques-Dalcroze system of rhythmic gymnastics, combining instruction in the foundations of musical knowledge with acquirement of rhythmical sensibility and development of sensory and mental attention, is spreading rapidly throughout Germany and other Continental countries. Rhythmic gymnastics are the outcome of many years' experience of Herr Jaques-Dalcroze, a former professor at the Geneva Conservatoire, and are, as yet, but little known in this country. Many friends of education, musical and general, amongst whom are Dr. Sadler, Vice-Chancellor of the University of Leeds, and Prof. Findlay, of Victoria University, Manchester, consider it desirable in the interests of education in this country to invite Herr Jaques-Dalcroze to come over, accompanied by a few of his advanced pupils, to give addresses and demonstrations in explanation and illustration of his unique system. Educationists who endorse this proposal are invited to co-operate in providing a fund to meet the expenses of such a visit. Inquiries upon the subject and offers of help may be addressed to Herr Dr. Dohrn, Rhythmic Gymnastic College, Hellerau, Dresden, or to Mr. C. B. Ingham, Moira House, Eastbourne.

THE official organ of the Boy Scouts, unlike most official organs, is full of interesting matter to many besides those who are directly concerned with the subject with which it deals. No scout master or member of a scout committee can well afford to be without it, not so much for its relation of things accomplished as for its suggestiveness with regard to future action. The whole paper is permeated by a genuine enthusiasm for the work in hand. It is written by men who take scouting seriously, and believe in it implicitly. We should like to recommend all schoolmasters to possess themselves of at least one issue. They will learn more of the true aims of the Chief Scout and his followers from this paper than from reams of criticism. There is a great work waiting to be accomplished by all schoolmasters who are willing to undertake it, and they can be best introduced to that work by *The Headquarters Gazette*. The current issue contains a sketch of the life of the Chief Scout, articles on subjects so closely allied to school life as "The Value of Organised Play and Games," "Boy Labour and Apprenticeship," and an article by Sir Ernest Shackleton on "Cheerfulness," which will be wisely appropriated by the headmaster who is in want of a few illustrations for his next address or sermon.

MESSRS. W. AND G. FOYLE, 135, Charing Cross Road, London, W.C., have issued a new edition of their catalogue of educational books for schools, colleges, and self-tuition. We observe that Messrs. Foyle are able to supply almost any educational book secondhand at half the published price.

SCOTTISH.

THE annual Congress of the Educational Institute of Scotland was held this year in the Royal High School, Edinburgh. Dr. Alex. Morgan, principal of Edinburgh Training College, presided over a large and thoroughly representative gathering. The president's address was a

finely conceived and philosophical analysis of the bearing of education on social and economic questions. Education, he said, is no longer regarded as being confined to instruction in the subjects of the school curriculum, but is held to comprise all the forces that help to form the minds of the young. As a consequence, there is growing up a new body of educational literature less specialised in substance and less narrow in aim than was formerly the case. Pathologically considered, the ills of society may be grouped round three main causes: destitution, vice and crime, and parasitism, or the exploitation of the weak by the strong. Estimating the annual pecuniary burden caused to the nation by these social diseases, he considered that £100,000,000 would not be rating it too highly. But, if estimated in terms of human misery and suffering, mutilated character, and destruction of spiritual power, the loss to the nation is simply appalling. For these evils a cure must be sought in social reform, economic reform, and educational reform. The two former are in the province of the statesman, but the chief factor in higher civilisation and national progress will be found in education. But it will be an education very different from that now given in schools—an education having regard more and more to the upbuilding of character and preparation for the duties of life.

THE growing pessimism in regard to the results and products of our educational system found a brilliant exponent in Lord Rosebery. His Lordship has frequently figured on previous occasions as an eloquent pleader for better and more highly organised education. But it is characteristic of Lord Rosebery that he should play the leading part in two such diverse rôles. His comparative failure as a politician is due to the fact that he sees too many sides to every question. A politician to be successful should be like the Irish judge, and refuse to see, as he did to hear, both sides of a question "because," he said, "it was so confusing." Speaking at the congress dinner, he wondered whether, "after forty years of the Education Act, we were turning out better men, better morally, better physically, men of more energy, more industry, and more capacity for the work before them in the world." Though he did not answer his own question, he put it in such a way as to suggest that the products of the new education were no better than they should be. Now Lord Rosebery should know that no final answer to such a question can be given by the present generation. This can only be done when the movements and tendencies of the present are seen in the perspective of history. But, in any case, he should remember that while forty years is a long time in the history of an individual, in the history of a nation it is but as a watch in the night. The question should be, not what has education done in forty years, but what will it do, as Jowett pointed out, after it has been made universal and more prolonged, and after it has been inherited by successive generations of men? We must take long views in education, not short ones. Educating is like the planting of trees: you must be content to look for no return for 50 or 100 years, and yet be quite certain of a rich recompense in the end.

MR. MACGILLIVRAY, Glasgow, in the course of an address on "The Training of Teachers," said that the present policy of the Department is regarded with profound distrust by the teachers of Scotland. They are under deep obligations to Sir John Struthers for the many substantial proofs he has given of his goodwill towards teachers and of his sincere desire to raise their status and position in the country, but on this subject they think he is pursuing

a policy that will eventually lower the profession in the eyes of the public and do a grave injury to Scottish education. The Training Regulations of 1906 have been heartily welcomed by teachers, because they promise to bring closer the connection of teachers with the university. This, indeed, is expressly laid down as one of the main aims. But in recent years there has been a serious falling off in the number of students-in-training attending the universities. Economic reasons doubtless account for part of the decrease, as *res angustae domi* will always compel many students to take the shortest course to earning a livelihood. But the Department, through its regulations and by its officers, seems disposed to discourage students going in very large numbers to the universities. The connection of Scottish teachers with the universities has lasted for more than 300 years, and is mainly responsible for the high standard of culture possessed by many of its people. Just as Scotland is laying aside its old traditions, England is found advancing to take them up. The English Board of Education in a recent circular proclaimed its belief in the policy of having graduates in the elementary schools, and offers ample facilities for their training.

SIR GEORGE KEKEWICH, M.P., in addressing the congress, said that among the advantages of being an ex-official was that he was able at last to tell the truth, and that was more than he had been able to do during his official life. The Minister of Education entered upon his duties knowing nothing whatever of educational traditions or administration. He entered not merely with an open mind, but with an empty mind, to be filled entirely at the discretion of the permanent officials. These and similar criticisms of the working of the Department of which he was once chief naturally "brought down the house." But we think Sir George in his reflective moments must regret giving utterance to them. They may be necessary, and probably are, but they would come in much better taste from others. If a man has not been able to say the truth while in office, then he should remain on these subjects for ever silent.

PROF. DARROCH, speaking on "Democracy and Education," was quite as pessimistic as Lord Rosebery, but, being a philosopher and a professor of education to boot, less excuse can be found for him. No one can be blind to the fact that there are characteristics in the youth and young manhood of the nation that all must deplore, but the school should not be saddled with the responsibility for them. They represent the atmosphere of the home, the Press, the streets, and the workshop, and enter the school at every pore. We can no more keep them out than back the tide with a broomstick. The whole influence of the teachers is directed against them, and but for their efforts matters would be very much worse than they are. Mr. McKie, Edinburgh, read an excellent paper on "The Curricula of Primary and Secondary Schools."

THE Edinburgh Provincial Committee had before it at its last meeting a report on the enrolment of training-college students in university classes. There were 741 students in training—167 men and 574 women. Of these, 57 men and 414 women were not attending university classes. Compared with the previous session, these numbers showed a falling off of 48 men and 66 women. Dr. Lorne, in submitting the report, said that the figures represented a state of matters that called for their most serious attention, and he moved that they appoint a special subcommittee to consider the whole question in conjunction with the other provincial committees. The Rev. Dr. Gardiner said that a considerable number of the students

who entered the training colleges were qualified to pursue their studies at the university, but preferred not to do so. He thought it was a mistake to allow so many students to confine themselves to the narrow professional training at the training colleges.

IRISH.

A MEETING of the Committee of Heads of Secondary Schools appointed to confer with the Department with reference to the extended programmes and regulations for science and art instruction was held at the offices of the Department in December last, and had under consideration suggestions for modifying Rule IV. 23 of the Department's programme of experimental science, drawing, manual instruction, and domestic economy for day secondary schools. The rule prevents a student earning grants for a second time for a third-year syllabus unless he repeats the same syllabus. He is not, for example, allowed to earn a grant for the third-year mechanics or the third-year physical and commercial geography if he has already earned a grant for the third-year physics. It is proposed to change this. The committee had also under consideration the Department's new syllabus in physical and commercial geography.

At a meeting of the Dublin Educational Society in December, held in the Royal College of Science, the Rev. T. Corcoran, S.J., professor of education in University College, Dublin, delivered a lecture on "Education through History." The title was meant to indicate that education is a single process, and the subjects in which it is given are strictly subordinate to that process. Consequently, the importance of such a subject as history will vary immensely with the type of education being provided into which it enters. There is too great a tendency to consider history as a subject concerning only the past. The fact that it contains so much memory work makes it all the more necessary that there should be constant comparison and contrast between the present and the past. In elementary work the need of information about the present time is so important for those taught that the past should be reviewed and handled mainly in reference to its power of throwing light on the present. To the primary pupil the past hundred, or even fifty, years are as important as all previous history put together. To the secondary-school pupil it can be a subject involving more scientific treatment. The general method by which science subjects are taught can with much fruit be applied to historical studies in the secondary schools. In other words, the subject-matter of history must be worked and reworked from different points of view, and such things as synopsis, notes, and tabular lists should not be put into pupils' hands. Local history has its due subordinate place in any historical programme, and can best be used to illustrate the great events of national or Continental history. Finally, the teacher should avoid cold indifference in his presentation of the facts of history; he must not let it become on one hand a mere pageant, nor on the other a mere accumulation of scientific data.

THE question of medical inspection of schools is beginning to attract some public attention in Ireland. At a recent meeting of the Statistical and Social Inquiry Society of Ireland, Dr. J. B. Story read a paper entitled "Medical Inspection of Schools and School Children." He asked four questions: (1) What does medical inspection of schools and pupils mean? (2) What good can it do to Ireland? (3) What will it probably cost? (4) Where is the money to come from? The answers to the first three

questions were supplied by comparison with England and Wales, where it has been ascertained that 70 per cent. of the school children require medical treatment. The probable cost to Ireland would be £23,000 per year. It could only be supplied from local sources or from the Treasury. Dr. Story favoured the former, even at the cost of giving the local bodies a voice in the school management. An experiment has been made with four schools in Belfast with results analogous to those in England. There is much preventable illness among children, and the way to grapple with it is to improve the home conditions and the housing of the poor. Without this attempt, to guard the children while in school will be futile.

THE time-table of the Intermediate examinations for next June has been issued. The examinations will begin on June 17th and finish on June 24th. This is a much shorter time-table than usual, and is due to the absence of any special papers. The English (history and geography, composition and literature), the arithmetic and algebra, and the drawing (honours) papers are for three hours, but all the others only for two. This seems rather inadequate for some subjects, e.g., Greek, Latin, or French honours.

THE Intermediate Commissioners have issued a pamphlet with the reports of the examiners for 1911. It covers 84 pages, and deals with the subjects in detail. It requires to be read carefully, as it treats in many cases of special questions and minute particulars. It contains the usual complaints of the inevitable shortcomings of the students, but, on the whole, the examiners seem to be agreed that there is a distinct improvement all round. Some quotations may be made. Taking the reports of those examiners who have been criticised in various quarters in previous years, we find the examiner in French saying: "I have persevered in the line of conduct I entered on five years ago, i.e., to do my utmost to raise the standard of French in this country. What is the result to-day? With the evidence before me, and the reports of thirteen examiners, it is gratifying to me to state here that whereas in 1907 barely 20 per cent. of all the honours papers could be pronounced as good or very good, in 1911 this judgment applies to between 35 and 50 per cent. . . ." Writing on the Junior Special, one examiner, of great experience with English boys, says: "A comparison of these papers as a whole with several hundreds of English papers of a presumably higher grade, and done by candidates certainly much older, results very much in favour of your Junior Special." The examiner in Irish says: "It is pleasant to be able to report a marked improvement in all grades. The correctness of the Irish spelling is remarkable; in fact, the spelling of even the preparatory grade candidates would come as a surprising revelation to those who consider the present system of Irish orthography too complicated and difficult for a person of average intelligence. In the higher grades the translation of English prose into Irish was excellently rendered, the majority of the students showing a masterly grasp of literary style, vocabulary, and idiom." The examiner in English says: "It can safely be asserted that there was a sufficiently marked improvement on the work of last year, and that there was a decided improvement on the work of some years back." The examiner in history and geography says: "There has been, in the upper grades and in the preparatory grade, some advance in the amount of intelligence and of power of thought displayed by the students, as shown by their replies to the questions in history and in some portions of the geography course." For the defects of the candidates, which are neither few nor unimportant, reference should be made to the pamphlet itself.

WELSH.

A CIRCULAR (Wales, No. 42) has been sent out from the Board of Education stating that from January 1st, 1912, the following branches of the Board's work will be transferred to the Welsh Department of the Board, viz., (1) the administration of all grants to Wales and Monmouthshire under part i. of the regulations for technical schools, schools of art, and other forms of provision for further education; (2) the administration of grants from the "Development Fund" for agricultural education in Wales and Monmouthshire; (3) administration of Welsh endowments for further education.

ANOTHER change by the Board of Education (Welsh Department) will be the issue of triennial area reports on the work of each local education authority in Wales. The first instalment of these reports, dealing with approximately one-third of the total number of authorities in the Principality, is nearly ready for issue. The remaining authorities will be taken in rotation for report in 1912 and in 1913. The earliest reports will deal mainly with elementary education, but it is intended that, eventually, they will include references to all the educational activities of the local authorities in each area. The reports will be printed and a limited number of copies sent for distribution to teachers and others concerned, and further copies can be purchased at the cost price to H.M. Stationery Office. These area reports will supplement, not supersede, the reports of H.M. inspectors on individual schools, which will continue to be issued as before. The intention of the new area reports is to give a comprehensive view of the whole educational system of the district, and thus to facilitate the co-ordination of the various grades of schools and classes, and to assist the general development of the work of each authority.

BARRY EDUCATION AUTHORITY has won for itself a high reputation for its progressive policy. But a reaction seems to have set in. An amended scale of salaries for teachers is to be introduced on a recommendation from a special subcommittee as a result of the criticism of the high cost of education in Barry. Under the amended scheme the schools are to be graded on average attendance, and the annual increments of teachers are to be lowered, although the maxima are substantially retained. It is further proposed that the number of scholars in average attendance in the schools shall have one assistant teacher for every thirty-five pupils, and that no additional teachers shall be appointed until this number shall have been reached.

THE suggestion, which seems to meet with great favour, has been made that the proposed Welsh national tribute to Mr. Lloyd George should take the form of the endowment of Lloyd George scholarships at the three Welsh University Colleges.

THE movement to obtain a separate Welsh Department for Welsh agriculture has advanced a stage. The Welsh Parliamentary Subcommittee has sent out a preliminary notice saying, in its opinion, it is necessary to have a committee appointed which should include members from all parts of Wales and representatives of its governing bodies. It is proposed to have a National Committee, to consist of about sixty representatives, in addition to the Welsh M.P.'s themselves. Every agricultural organisation of whatever nature in each constituency is invited "to unite in the nomination of one representative." The "organisations" include chambers of agriculture, agricultural societies, co-operative agricultural societies, small holdings and allotments societies, and livestock societies.

It is intended to hold a meeting of this committee, and to submit to it a detailed report upon the Bill drafted by the Glamorgan Chamber of Agriculture.

THE Director of Education for the Rhondda district has issued a report directing attention to the difficulties caused by the shortage of teachers, accentuated by the Board of Education's revised scale of staff values for teachers and insistence on a larger proportion of certificated teachers in each school. He says: "Advertisements in the scholastic and general newspapers for lady certificated teachers have proved ineffective; applications to training colleges have been of no avail; communications to other education authorities for the services of surplus teachers (if any) have not brought any response; and, finally, letters to those who have been registered as unemployed teachers, and of whom we have read so much in the newspapers, have brought only a few teachers—and the majority of these have stayed a very short time to suit their own convenience, leaving immediately a place nearer home has been possible. Unfortunately, this newspaper agitation has had its effect, and the number of candidates for pupil-teachership and bursarship has fallen by 50 per cent., so that in future we shall be compelled to fill vacancies by those qualified as students and not as teachers; this will be detrimental to school progress."

RECENT SCHOOL BOOKS AND APPARATUS.

Modern Languages.

Je sais un conte. By Mrs. J. G. Frazer. 120 pp. (Oxford, Clarendon Press.) 1s. 6d.—A collection of sixteen short and attractive stories, told with Mrs. Frazer's well-known skill. The vocabulary employed is fairly extensive; the stories would probably prove suitable for a good middle form. There are no notes, but Mr. Chouville has supplied the phonetic transcription of the first two stories, with which we do not always find ourselves in agreement. Apart from misprints, we question the advisability of making the final vowel long in *journée*, *venaient*, *coucher*, *guérie*, *cornues*; on the other hand, in *jour*, *grève*, *pleure*, *lessive* (2d. syll.), the vowel should not be short, as it appears here.

M. du Camp, La Dette de Jeu. Edited by de V. Payen-Payne. xi+151 pp. (Cambridge University Press.) 2s.—"La Dette de Jeu" is a well-written story of moderate difficulty. Mr. Payen-Payne is an experienced editor; in a brief introduction he tells about the author, and the notes elucidate all difficulties. There is a full vocabulary.

Dent's French Primer. By W. E. M. Llewellyn. (Dent.) Phonetic Text, 64 pp., 8d. Ordinary Text, 64 pp., 8d.—These little books are intended for young beginners, as affording an introduction to a fuller first course, more especially the "First French Book" of the same publishers. The Phonetic Text is copiously illustrated, so that the meaning of all concretes in the text is readily conveyed. There are simple exercises on the essentials of grammar. A few songs, with the sol-fa notation, add variety. The Ordinary Text contains the same reading matter, ingeniously printed to direct attention to the peculiarities of the spelling. The transition from phonetic to ordinary spelling is most skilfully made. These books are a valuable contribution to the methods of early instruction in French.

Senior French Unseens. Edited by L. J. Gardiner. xi+100 pp. (Clive.) 1s.—"This collection of passages . . . will, it is hoped, supply a want that has long been felt by both teachers and pupils." We rub our eyes and look at half a dozen similar books on our shelves. We do not wish to be unkind, but really—we have quite enough books of snippets, and the teachers and pupils (if any) who feel this want are earnestly advised to repress the morbid craving and cultivate a taste for continuous texts.

Pitman's French Reciter for Junior Forms. By F. W. M. Draper. ix+44 pp. (Pitman.) 8d. net.—The sub-title is "Le roi lion et ses grands vassaux," and the reading matter consists of fables by La Fontaine and Florian, with one in prose by Fénelon. Whether it is wise to set archaic poetry for repetition in junior forms may be doubted; but if it is done, the editor should supply rather fuller explanations than is here the case. The "Elements of French Versification" cannot be made clear in a page and a half, and two lines are hardly adequate for a Life of La Fontaine. The notes also might be expanded with advantage. Such a note as "délicatesse, espèce, weak rhymes," even if correct, conveys little meaning unless the pupil knows what constitutes weakness in French rhymes; but nothing is said about this in the note on prosody.

Classics.

Higher Latin Composition. By A. H. Allcroft and A. J. F. Collins. 218 pp. (Clive: University Tutorial Series.) 3s. 6d.—This is a very good practical handbook for translation into Latin: not really Latin composition, but the art of turning English into Latin. The differences of the two languages depend very largely on the dead metaphor and meaningless ornament of current English style; and this the authors drive home by many examples. They also give examples of periodic structure (why is it, by the way, that the period is assumed to be the normal Latin sentence?); and then various traps and difficulties are taken—personification, metaphor, order, the English infinitive, and so forth. The book is, as it should be, an analysis of English, and the student who works through it will learn a great deal of English which he did not know before. We recommend the book.

Pervigilium Veneris. 16 pp. Oxford Plain Texts. (Clarendon Press.) 4d.—A word of welcome is due to this book, a cheap edition of a remarkable poem, emended and restored. But for whom is it meant? The poem is not well suited for school use, and later we should expect students to have it in other volumes. But, anyhow, we return thanks for it.

Caesar's Fifth Campaign, from Caesar B.G.V. With introduction, notes, and vocabulary. By S. E. Winbolt. Illustrated. xii+90 pp. (Bell's Simplified Latin Classics.) 1s. 6d.—In this, like its predecessors, the sentences are printed as paragraphs, and some long vowels are marked (not, however, hidden quantities). It is certainly a mistake not to mark all long vowels, if some are marked. The pictures interrupt the text. At the foot of the page are notes in English; examples are "ablative of time within which," "dative of indirect object," "subjunctive in indirect question," and translation of phrases. At the end are Latin questions, and English sentences for translation. There are many who will welcome this type of book; it seems to be an attempt to please all tastes, but it does not seem to us to be of the best kind educationally. Readers may form their own opinion from what has been said.

The Essentials of Greek Syntax: An outline of the ordinary prose constructions, together with exercises in composition based on Xenophon, Lysias, and Plato's Apology. By C. C. Mierow. viii+156 pp. (Ginn.) 5s. 6d.—The constructions are arranged in order: Cases one by one, pronouns, prepositions, the moods (principal clauses of various categories, then subordinates), infinitives, participles, verbals, *ἀν*, negatives. The exercises, which fill the second half of the book, are partly classified by meaning, partly by grammar. Each section is arranged in a table: in one column the name of the use, or a description of it; in another, references to four grammars; in a third, an example, English and Greek. This gives clearly and simply the chief uses of each type. The exercises are based each on a small section of an author, indicated at the head, and with references to the grammatical part. The work is compact and systematic, and will certainly be useful in revision; but it is not suited to teach from.

Cicero Pro Murena: texte latin, avec une introduction historique, une analyse et des notes. Par E. Galletier. xxxiv+110 pp. (Paris: Hachette.) 1f. 50.—We cannot recommend this book for school use, because the type is rather dazzling, and that of the notes too small; the pages have no margins to speak of, another trouble for young eyes. There are French notes at the foot of the page, and an introduction, neat and elegant, which we wish all could read. For the scholar, it is a welcome pocket companion.

English.

The Beginner's English Grammar. By F. W. and E. Harrison. 143 pp. (Longmans.) 1s. 6d.—The authors are mistresses in the Manchester High School, and their headmistress, Miss Burstall, has written a short introduction to their book. We may say at once that it is an excellent piece of work; we do not know a better introduction to English grammar. The technical terms—which, by the way, conform to the suggestions of the Joint Committee on Terminology—are introduced so naturally and gradually that they actually become a help rather than a hindrance to the young learner. We fully agree with Miss Burstall that the necessary protest against the old style of formal grammar has probably been carried too far, and we heartily welcome this sane reminder that very young children may be taught through their own tongue the elements of language in such a way as to compel thought and to provide a basis for tackling the structure of French and Latin.

The Ideal Dictation and Composition Exercises. Senior Division. 36 pp. (Grant Educational Co.) 2d. net.—This is a collection of single-paragraph essays of some dozen or fourteen lines each on very miscellaneous topics. Each essay has an exercise in composition attached to it. We give a few examples selected consecutively from the middle of the book. The topics are Money, Finance, Ireland, Forms of Water, Avalanches. As exercises the children are to imagine themselves battered sixpences, and to explain their shabby appearance, or they are to tell the names and positions of the four provinces of Ireland, or they are to write little essays on subjects equally relevant or irrelevant to the model provided.

Life in Shakespeare's England. A Book of Elizabethan Prose. Compiled by J. D. Wilson. xv+292 pp. (Cambridge University Press.) 3s. 6d. net.—The plan of this book is laid upon excellent lines; briefly, it is an anthology

of Elizabethan prose literature to illustrate the various phases of the normal life of the period. One chapter will suffice to show the author's purpose and the success he has achieved. Education is the topic, and the subdivisions are the child and parent, the grammar school, the university, and travel. The authors quoted—not, be it said, in sparse snippets, but at adequate length—include John Earle, Lord Bacon, Shakespeare, R. Willis, John Brinsley, William Harrison, Sir Thomas Overbury, and Roger Ascham. The result is that we have the Elizabethan point of view on one of the most distinctive of Elizabethan activities. We have chosen education as our example for obvious reasons, but the other chapters are equally characteristic and equally well done. We heartily congratulate Mr. Wilson on the excellent way in which he has carried out a most interesting idea, and we assure all teachers of English—and of history too, for that matter—that they have here one of the most helpful and fascinating books that has appeared for many a day.

(1) *Letters from Hell.* Translated by J. Sutter. 348 pp. (Macmillan.) 1s.

(2) *A Poor Man's House.* By S. Reynolds. 320 pp. (Macmillan.) 1s.

(3) *The Intellectual Life.* By P. G. Hamerton. 455 pp. (Macmillan.) 1s.

(4) *South Sea Bubbles.* By the Earl and the Doctor. 324 pp. (Macmillan.) 1s.

Reprints of books that made a stir are always interesting: the stir begins again, and in other circles. Whether the powerful "Letters from Hell" will reach another audience, *and will move it*, is doubtful; but the attempt was worth making. The fault of all such books is that they recognise, by an ecclesiastical influence which is certainly not Hebraic, one type of sin; and this one-sidedness of view is resented more to-day than ever. There were ten commandments in old days; nine seem to have disappeared.

Mr. Reynolds's book, "A Poor Man's House," needs no recommendation. He and Miss Loane and the sixpenny doctor are on the right track, pointed out so plainly two thousand years ago, and now, except for a few, grass-grown. You cannot speak with authority of those you do not know; to know people you must live with them. Dickens's genius got near the poor, with a limitation or two; but neither Homer, nor Dante, nor Shakespeare lifted the curtain.

It is a delight to welcome Mr. Hamerton's "Intellectual Life," a classic for the few, perhaps, but a real classic always to be taken up with thought and at a time of leisure. And the author's name and life, patient, refined, and sad, looks out from every page.

The last of the four is of a different world. The scenes in the South Sea Islands are vivid, and are indeed South Sea Bubbles; the reprint of the book will not be welcomed by the missionaries at home or abroad, and the writers apologise for having "trod on anyone's toes"; they have, it seems to the reader who is new to the book, "trod" on the toes, the body, and all over the face of a good many people. Still, you can see in Paris what you go to find; and in the islands, with all due respect to the authors, it may be the same.

History.

A Short History of the American People. By E. H. L. Turpin. xviii+478 pp. (New York: The Macmillan Company.) 4s. net.—This is a history of the United States of America told in the easy flowing style and illus-

trated in the abundant manner to which we are accustomed in school books published in that country. The narrative is followed by a list of "topics for study," appendices of tables, and an index. The feature which differentiates this book from others of its kind is that it dates from South Carolina, and views the slavery question from a point of view other than that to which we are accustomed in books dating from the Northern States. This makes it interesting reading.

From Conquest to Charter. By E. Ross. 288 pp. (Harrap.) 1s. 6d.—Miss Ross tells the story of England from 1066 to 1215 in a lively way, with conversations wherever possible, and with chapters on sports and other customs of the people. There is an abundance of pictorial illustrations, apparently woodcuts, one or two of which we could wish away. Children's imaginations of the horrible are strong enough. At the end is a chronological table, but there is no index.

The Science of Wealth. By J. A. Hobson. 256 pp. (Williams and Norgate.) 1s. net.—The ordinary reader who wants a good and easy guide to modern economics cannot do better than read this excellent little book. The subject is alive, the illustrations are new and apt, and the teaching is sound. Would that it were in the hands of all "electors"!

The Great Fight for Canada. Edited by H. Strang. 160 pp. (Frowde.) 1s.—Mr. Strang here gives us ten extracts from historians of Canada describing some of the fighting that took place in Canada from the seventeenth century to the early years of the nineteenth. He has added a map to illustrate the siege of Quebec, and four coloured pictures. Each extract has a page or two of introduction, but there is no index. It should delight our boy pupils, and combines the advantages of romance and historical truth.

The Tower History Readers. (1) *The House of Hanover.* By T. Bevan. 256 pp. 1s. 8d. (2) *The Complete History of England.* By F. A. Farrar. 327 pp. 1s. 10d. (Pitman.)—We have already noticed the previous volumes of this series. These maintain the same character, readable text, and an abundance of illustrations, coloured and other, extending even to the insides of the covers. The first has an appendix of brief biographies and a summary, and they are sufficiently up-to-date to have between them photographs of the present King, Queen, and Prince of Wales.

Mathematics.

A New Geometry. By W. M. Baker and A. A. Bourne. xxii+246+vi pp. (Bell.) 2s. 6d.—In this book the now customary arrangement of a preliminary course of practical work, followed by a course of deductive theory, has been adopted. The preliminary course is short, but the authors have been wise in confining it within narrow limits. Its function is to familiarise the learner with the concepts the relations of which are to be investigated, and as soon as this has been accomplished it is useless to spend further time upon it. In dealing with the propositions, the writers have, on the whole, adhered to Euclidean methods of proof except when some modern method was obviously superior; on the other hand, the grouping is entirely in accordance with modern ideas. We find ourselves wondering, however, whether a schoolboy would really find it easier to follow the course here given than that in Euclid. It certainly seems to put a rather heavy strain upon the average boy to be called upon to understand the subtleties

of parallel lines no later than proposition 5. Still, the teacher can arrange the order as he chooses. The book ranks as one of the best of the "new" geometries.

Practical Mensuration. By A. J. Dicks. viii+159 pp. (Nisbet.) 1s. 6d.—As the title of the book implies, many of the exercises are practical, that is, involve the actual manipulation of measuring instruments. A certain amount of work of this description should be done by every student, but each piece of work should have a definite aim, showing how some property of the material universe is capable of representation by mathematical symbols. A considerable number of the exercises in this book are mere time-wasters. There is nothing educational in giving a boy a ruler and setting him to measure all the books, tables, desks, and windows within reach. The only important matter is to get him to read the graduations on the ruler correctly. Again, what knowledge is acquired by measuring with pieces of string irregular lines, rims of tumblers, curved pieces of wire, &c.? The writer seems oblivious of the fact that mathematics is concerned, not with recording isolated facts, but with determining the relationships between facts.

Tables of Physical and Chemical Constants and some Mathematical Functions. By G. W. C. Kaye and T. H. Laby. viii+153 pp. (Longmans.) 4s. 6d. net.—The compilers of these tables deserve the thanks of all physicists. They have taken great pains to make their book a trustworthy record of the principal data of physical science, and the range and variety of the information it contains is sure to make it indispensable in all laboratories. The authors do not profess to have included everything which some workers might expect to find, but the omission of some special sets of data is compensated by references to books and original papers where the information required may be found. The value of the compilation is greatly increased by the inclusion of authorities and dates. Only prolonged and minute examination would enable one to detect errors, but we have noticed the following points where a little improvement seems desirable. In the table of the elements of the solar system it should be noted that some of them are subject to variation, and the epoch, and perhaps rates of variation, should be stated. The formula

$$5(t^{\circ}\text{F} + 40) = 9(t^{\circ}\text{C} + 40)$$

is more symmetrical than the one given on p. 10. There is no reference to Balmer's law and allied laws for spectrum series, and in connection with ionic charges the formula for Stokes's law might be given.

Munro's Book-keeping Down to Date, including Accountancy and Banking. By A. Munro. Fifth edition. xv+693+xxxix pp. (Effingham Wilson.) 3s. 6d.—This new edition is double the size of the preceding one, much having been rewritten, new chapters added, sets of graduated exercises appended to the chapters, and the latest examination papers of the principal commercial examining bodies included. The book is a perfect encyclopædia of everything relating to accountancy and book-keeping, and its conciseness, clearness, and accuracy should make the new edition as acceptable to students as the preceding issues have been.

Civil Service Test Papers in Mathematics. By A. F. van der Heyden. 118 pp. (Appleyard.) 3s. 6d. net.—Candidates for the Civil Service are now confronted by problems which are of a type very imperfectly represented in current text-books, and the book before us will be found to fill the gap. The first thirty-two papers are original, and the remaining twenty are selected from recent examination papers.

Science and Technology.

A Primer of Astronomy. By Sir Robert Ball. viii+228 pp. (Cambridge University Press.) 1s. 6d. net.—If astronomy occupied the same place in the school curriculum as chemistry, or physics, or botany, this would be just the right kind of introductory manual to place in the hands of the pupils. The book contains an excellent general view of celestial bodies and movements, beginning with diurnal movements, and then describing in turn the various bodies of the solar system and in the stellar universe, while gravitation forms the subject of a separate chapter. To the present edition a chapter of forty-two pages has been added, in which the various constellations, and objects of interest in them, are described; and there are also two large maps of the northern and southern heavens. No one knows better than the author how to make astronomy interesting; and though this book is by no means childish in style, it conveys instruction in as simple a way as any student beginning the subject could reasonably desire.

Chemistry: an Elementary Text-book. By William C. Morgan and James A. Lyman. 429 pp. (New York: The Macmillan Company.) 5s. 6d. net.—It is distinctly desirable that an elementary text-book on chemistry should not only provide instruction in the fundamental facts and principles of the science, but should also indicate the bearing of these on the daily life of the individual and the community. In the absence of this human interest the beginner gets the impression that chemistry is purely a laboratory business. The present volume aims at vitalising the science by the introduction of material taken from the world of common experience and industry; and the character of the numerous illustrations is largely determined by this consideration. They include such subjects as the burning of San Francisco, the effect of fertilisers on peas and oats, the thermite process, an oil gusher, fire extinguishers, and a nitroglycerine explosion. Whilst the authors' aim is altogether admirable, the subject is not satisfactorily handled on its purely scientific side. The reader, who is not supposed to have had any previous instruction in science, is required in the first chapter to digest such tough conceptions as energy, chemical affinity, reaction velocity, and endothermic changes; while the first formula which meets his eye is a somewhat disquieting one, viz., $C_{720}H_{1134}O_{248}N_{218}S_5$. In accuracy of statement and expression the authors' work leaves a good deal to be desired, and their use of the spellings "chlorin" and "oxid" is irritating to English readers.

Elementary Quantitative Analysis. By F. M. Oldham. 90 pp. (Mills and Boon.) 1s. 6d.—This useful little volume is designed to meet the requirements of students preparing for natural science scholarships at the universities, for the London Intermediate Science examination, and for the First Medical examination. Two-thirds of the book treat of acidimetry and alkalimetry, of the use of permanganate and dichromate, of iodine titrations, and of various precipitation processes. The remaining chapters deal chiefly with the gravimetric analysis of copper sulphate, common salt, calcium carbonate, and magnesium sulphate. The directions given are sound, concise, and practical, and altogether the book provides a satisfactory introduction to the more common volumetric and gravimetric processes. Curiously enough, the author falls into the common error of mis-spelling "desiccator." It is a pity, too, that the volume is disfigured by the inclusion of more than thirty pages of advertisements.

Modern Science Reader, with Special Reference to Chemistry. Edited by Robert M. Bird. 323 pp. (New

York: The Macmillan Company.) 5s. net.—This "reader" is a collection of interesting articles on scientific topics gathered from various sources, and many of them written by eminent men of science. In the majority of cases the writers deal with some aspect of industrial chemistry. Thus there are articles on explosives, on artificial silk, on steel rails, on the commercial production of oxygen, on scientific developments in the glass industry, on the achievements of electrochemistry, on the coal-tar colour industry, and on natural and artificial perfumes. For those who are more interested in other aspects of the science there are articles on radio-activity, on the romance of the diamond, on the composition and nature of coal, on the emission of light by a flame, on the production of wealth from waste, on the electronic theory of matter, and on unsolved problems of chemistry. The authors of the various papers include such well-known names as Crookes, Remsen, Curie, Richards, and Lodge. While the book is primarily designed for college men who are reading chemistry, the articles are quite suitable for the general reader. The volume should stimulate in the young mind an intelligent interest in the problems and achievements of modern chemistry.

Experimental Chemistry. By F. E. Weston. 140 pp. (Longmans.) 2s.—This volume is marked by a number of novel and admirable features. In a series of well-chosen experiments the beginner is made acquainted with the fundamental facts and laws of chemistry, and the introduction of theoretical matters is avoided studiously. In harmony with the emphasis thus laid on the experimental aspect of the science, the pages of the book are innocent of symbols, formulæ, and equations; the atomic-weight table is conspicuous by its absence. The chief topics suggested for experimental study are solution, with examples of filtration, evaporation, and distillation, air and water, acids and alkalis, various common gases, neutralisation and salt formation, equivalent weights, and the laws of constant and multiple proportions. In the treatment of this last subject there is a little falling away from the empirical scheme characteristic of the book as a whole. Experiments on the composition of the oxides of lead are suggested, and the student is told to calculate the weight of oxygen combined in each case with 207 grams of the metal. But why 207? The law of multiple proportions has nothing to do with this particular figure. The illustrations are a feature of the book. At every turn there are photographs showing apparatus and manipulative operations of all sorts. Prominence also is given to the historical facts bearing on the subject of each chapter. But, one is tempted to ask, who was "Humphrey Davey"?

Chemistry and Chemical Magic. By V. E. Johnson. 150 pp. (Frowde, Hodder and Stoughton.) 1s. 6d.—This is a miscellaneous assortment of "sudden, startling, and confounding" chemical experiments. The volume is described as a "play book"; and although it may enlist some young enthusiasts in the service of science, they join the ranks under false pretences. In this connection, the statement that "the best chemical tricks are performed by the aid of mechanical adjuncts" is particularly open to objection. The experiments deal with liquid colour effects, sympathetic writing, combustion and fireworks, chemical vegetation, alloys, fire-eating, &c. Many of the experiments, involving the use of phosphorus, potassium, sulphuric acid, or potassium chlorate, can only be described as dangerous. Perhaps the best thing about the book is the emphasis laid on the necessity for accuracy and cleanliness.

Miscellaneous.

The Courtier Stoops. By J. H. Yoxall. 366 pp. (Smith, Elder.) 6s.—Well-informed readers will soon find that the apparent mystery surrounding Goethe's marriage with his uncultured wife forms the motive of Sir James Yoxall's latest book, and suggests a solution to that strange *mésalliance*. The plot of the story is well worked out, and the interest of the reader is sustained throughout. A tendency to "fine writing" sometimes mars the author's style. The characters live, and sympathy is enlisted successfully on behalf of the faithful little peasant wife and her highly-strung husband. Surely, however, it is somewhat of an anachronism to find German peasants of the time of the French Revolution using such expressions of the modern English lower classes as "didn't ought." But the story, which appeared first as a serial in *The Schoolmaster*, may be recommended as entrancing reading.

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.

Examinations in History.

THE three papers in your December (1911) number giving three different teachers' views of local examination reports in three different subjects seem to me to supplement in a valuable way the excerpts from the annual reports which have long been a special feature of THE SCHOOL WORLD. But is not the time ripe for something still more comprehensive than the view of any individual teacher, however capable and experienced he may be—for a kind of blue-book, in fact, rather than impressions? The two older universities must have, not only as regards the local examinations, but also as regards their own internal examinations, vast masses of valuable material in the way of old examination papers and old examination reports which is now practically buried, but which could be turned to public use if adequately condensed and catalogued and made to reveal its significance. I have done something of this sort myself, with the imperfections that are almost necessarily connected with nearly single-handed and wholly unsubsidised work, in the classified examination questions in British and European history which I have published during the last ten years, and which form, so far as I know, the *only* thing we have approaching to a syllabus in history. In my opinion, however, it would be better if examining bodies did such work themselves: probably official publication is the only means by which the examiner can be adequately armed to meet the wiles of the crammer.

More important than examination questions, which are usually accessible in some form, are old examination results, which can be made generally known in their concentrated essence only by the authorities concerned. Supposing the figures are still in existence, it should be a work of no great difficulty to draw up an authoritative statistical report based on the actual numerical results for the last ten years or more. The British railway companies are said to have learnt much during the past decade by the use of such "exact figures": why could not teachers be advantaged in the same way? In history, for example, there is really only a limited number of *types* of question; and it would obviously be valuable for all parties if we could *know*, on the strength of a sufficiently wide basis of material, which types suit or do not suit candidates of different ages, and perhaps sexes. Similar information,

similarly documented as regards the individual persons, places, and terms which have proved to be generally known or generally unknown, would be no less directly valuable. When we had these solid, broad-based results before us we should be in a position to debate whether the teaching or the questions were faulty; and this debate would provide useful work for bodies containing either experts in history or experts in school work, or both—e.g., the two British Historical Associations. It is because both the setting and the marking of questions in history are apt to be individual and arbitrary that I emphasise the need of taking material from a long sequence of years, during which different examiners have probably been employed.

Secondly, a note of agreement. Some ten years ago—before beginning the publication of the series in which I have endeavoured to "serve tables" so that teachers of history should have more time for their proper apostolical work, and to which after some years' interval I am now able to give some continuous attention—I made a study, as diligent as my time and means permitted, of examination questions and reports with the view of finding out "What the Public Wants." I am naturally pleased to find Mr. Walmsley arriving independently at conclusions about historical teaching and examinations which so often agree with those which I have expressed in my more general pages (the ones common to most of the "Parts" and "Books" in my *Problems and Exercises*). In particular, I venture to refer to the emphasis on the necessity for written work in the first and fifth sections of my "Formulæ for History Questions" (which agree closely with Mr. Walmsley's protests against vaguely worded questions, and with both Mr. Walmsley's and Mr. Frazer's remarks on deficient knowledge of terms), to the thirteenth section of "Hints on Answering History Questions," and to the remarks on varying the wording of preparatory questions in "Revision Work in History." Doubtless most of these things are truisms—but it may be doubted whether their truth is generally recognised in practice.

I mention these points of agreement in order to lead up to one or two matters where I feel inclined to go beyond Mr. Walmsley's moderate suggestions. He speaks of the impossibility of schoolboys knowing *all* the geography and dates in history; and he proposes the extended use of alternative questions as a way out of this difficulty. It seems to me that the inordinate amount of sheer memory work practically required by our examiners in history might be expressed still more strongly: one might almost say that it is as though, in a paper on trigonometry, candidates were expected not merely to know certain definite book work and to tackle problems arising out of it, but also to know by heart the whole of a book of logarithmic tables. For it must be remembered that, in order to be sure of "flooring" a paper in history, the candidate must be able to answer not merely the required proportion of the questions before him, but also the same proportion (say three-fourths) of all the questions on his period which have ever been set at that examination, and which might conceivably have been set now. What formidable demands this makes on the memory may partly be realised by glancing at a few pages in my *Local Examination Test-papers in History*, more fully by working out brief answers to all the questions on one page and counting the number of facts that must be known and *memorised* for their adequate solution. One is tempted to wonder, indeed, whether the examiners themselves, assembled in secret conclave to propose and accept questions, could in all cases answer each other's questions to the setter's satisfaction. At any rate, one finds that examiners have often written text-books, and we all know of text-books of

British history written by persons of professorial standing, not under examination conditions, but with ready access to works of reference, the first editions of which bristle with grotesque errors of statement and misuse of terms. By way of example I might cite the careful and temperate review of the Fletcher-Kipling *School History of England*, which appeared in the September (1911) issue of THE SCHOOL WORLD.

How can this memory burden, and the curses of cramming and dulled interest which it inevitably brings in its train, be alleviated? Mr. Walmsley suggests the giving of more alternatives; but this seems to me only a partial solution of the difficulty. In certain branches of natural science it is usual, I believe, to distinguish sharply between written and practical work. Why should not some such division be essayed in history? Suppose the paper were divided into two sections, in one of which the candidate had, so to speak, to bring his own clay and straw in his memory, while in the other he was provided with the clay and straw, and merely had to do the brick-making! Though it is not a true nomenclature, one might call the first the "memory" and the second the "intelligence" section; and the former, which would be shorter than the second, and would precede it in practice, would form the compulsory "pass" portion of the paper. It would have to be rigidly limited to facts which, by general consensus and announcement beforehand, would be things that every British citizen ought to know.

For this purpose our first need would be a definite and authoritative, but not rigidly unchanging, syllabus. While recognising the element of truth in Mr. Wells's disparagement of history and geography as mere "information subjects" (in *Mankind in the Making*), I cannot help thinking that there must be some historical persons, events, movements, and institutions about which it is at least as desirable that every citizen should know something as it is that he should know that two and two make four, or that two straight lines cannot enclose a space. The amount and nature of this necessary minimum of historical information requires the joint work of many heads: as a basis of discussion, and "without prejudice," I suggest half the number of words that the University of Wales requires its matriculants to know in Latin—i.e., 1,000, of which half may be common nouns and half proper nouns. Naturally, I do not mean 1,000 nouns, no more and no less, in isolation, but nuclear: concerning each name should be required at least some of the knowledge set forth in my "Topical Exercises in History." I have lately been working at a page of "essentials" to provide materials for that page of "exercises," and it is possible I may attempt to publish my results in a periodical for criticism and improvement before they appear in book form.

Having thus defined our "memory" syllabus, we have the way clear for a great expansion of the part of the paper intended more especially for those who have some special taste or capacity for history. The main things are that these should have considerable liberty of choice, and should to some extent be provided with materials. If there are not really valid practical difficulties in the way, I should prefer the candidates to be allowed to bring, or be provided with, a certain number of books—e.g., an official date-book, certain recognised source-books, and anthologies of historical verse (not confined to publications of the university conducting the examination), some biographies and special works which are neither book-making nor monographs, and perhaps a historical novel or two. If this be impracticable, then a colourless chronological table either of the whole period or of the special subjects of questions

and a blank or semi-blank historical map to fill in would serve the purpose. In France, I believe, an official "memento chronologique" is allowed, or prescribed, for the baccalaureate. Which reminds me to add that this last paragraph is more particularly concerned with the school-leaving examinations.

J. S. LINDSEY.

Cambridge.

Literary Drama Association.

MAY I beg for your courtesy in order to give some information about the above society? The association was inaugurated in the summer of 1907 with the following objects: "To encourage interest in the best kinds of drama in schools, colleges, girls' or young men's clubs, students' unions, and among amateurs generally, and to promote co-operation among different institutions to that end."

Few persons are left nowadays who object to play-going on principle. But many regret the attraction of bad or poor dramatic work, and would desire to direct attention to the rich treasures of the past, as well as to the growing mass of excellent modern plays. Moreover, certain kinds of plays are peculiarly suited to amateurs, such, namely, as do not overtax their resources, nor place them in disastrous competition with professionals whose whole business in life is acting. Our aim is, then, to produce such plays, and to encourage, besides, the reading and study of other dramatic work that is rarely performed. We have given a number of public or semi-public performances, and have held several play readings, confined to members of the society. We have a small but steadily growing membership, a small balance in hand, a small loan library of plays, and a small wardrobe of theatrical costumes and properties.

The past year has been full of activity. We gave at the Guildhall a programme entitled "Ladies in 1811," which was played on the previous night at the Co-operative Hall in Burleigh Street. At the Homerton Training College an historical play of *Good Queen Anne* was given before an audience of about 200 students and others. The Booksellers' Association invited us to entertain their guests at a garden and evening party in July. On the latter occasion we produced an outdoor *Masque of St. George*, adapted from "The Faery Queene," and in the evening one of Maurice Baring's *Diminutive Dramas* and an item from the "Ladies in 1811" programme. In the previous year we were applied to by the promoters of the Church Congress to repeat our performance of the old Miracle Play of *Abraham and Isaac*. Such applications are encouraging, but in order to respond to them we need a larger society. We propose to invite the formation of branches in other towns, and I shall be glad to hear from persons interested in the scheme who may wish to assist a work designed to give a healthy direction to the recreative facilities of their town or neighbourhood. The minimum subscription, 2s. 6d. per annum, due in January, entitles members to the privileges above indicated.

We contemplate in the near future the production of a Nativity Miracle Play, and towards the end of this term of a German comedy in the original language.

FANNY JOHNSON.

(Hon. Sec. *Literary Drama Association*.)

Ramsey House, Barton Road, Cambridge.

A Friendly Society for Teachers.

THE Teachers' Guild of Great Britain and Ireland is establishing for teachers of all grades, men and women, a Friendly Society for Insurance against Accident and Illness, as the outcome of the passing of the National

Insurance Act. It will be possible to obtain benefits in accordance with the Act, or greater benefits, at the desire of the person insuring. Additional privileges will be granted to those who are members of the Teachers' Guild.

The scheme will be registered very shortly for approval by the Insurance Commissioners. Any persons interested in this scheme should communicate with me.

F. FAIRMAN.
(General Secretary.)

The Teachers' Guild, 74, Gower Street, London, W.C.

An Interesting Problem.

MAY I, although at the risk of appearing tedious, once more refer to Mr. Crawford's interesting problem in permutations? The novelty in this case, as he now presents it (THE SCHOOL WORLD, January, 1912), is that the places in a circle are *distinguishable*. I do not remember noticing this case in any text-book or examination. Hence Mr. Crawford deserves the gratitude of those to whom the idea is new. Incidentally, it shows the folly of expecting correct answers from schoolboys to any such novelties, which even tax the brains of adults. Nevertheless, I cannot agree with Mr. Crawford's statement that "method 1 occasionally betrays us." He says that "it is a good exercise to point out why." But I am not sure that he has yet plumbed the depths of the pitfall. For, pursuing the method indicated (with 5 distinguishable places), A can sit at the right (or the left) of B in 5 ways: thus the two can sit *together* in 2×5 ways. The others can now sit in $\underline{3}$ ways. Thus all can sit, with A and B *together*, in $2 \times 5 \times \underline{3}$ ways. But the total number of ways is $\underline{5}$. Hence the number of ways in which A and B are *not* together is $\underline{5} - 2 \times 5 \times \underline{3} = 60$.

Extending the problem to the case of n persons, we obtain $\underline{n-2n|n-2} = n(n-2)(n-3)\underline{n-3}$.

It thus appears that the "method" is not at fault. How can a correct method "betray" one, unless one makes a "slip" in using it? Mr. Crawford's "slip" (intentional or unintentional?) was in writing $2|n-1$ instead of $2n|n-2$ for the number of ways in which n persons can sit at a round table containing n distinguishable places, so that a particular pair always sit together.

R. WYKE BAYLISS.

61, Blenheim Park Road, Croydon.

Fiction for the School Library.

THE choice of new works of fiction suitable for a school library is always a difficult and important matter.

MAY I be allowed to suggest to your readers that those of their number who discover any specially useful book of this class should send its title, character, and other necessary particulars to THE SCHOOL WORLD?

If all interested in school libraries did this systematically, I feel sure that the results would be exceedingly helpful to many of us.

H. A. WEBB.

County Secondary School, Stowmarket.

[WE shall be glad to publish the titles of such suitable books as are sent to us.—EDS.]

Talks with Children about Themselves.

WILL you kindly permit me to direct attention to a remark in the review of my book "Talks with Children about Themselves" in the January issue of THE SCHOOL WORLD? The reviewer says the "talks" are "really so full of good matter that they are worth drastic translation into Anglo-Saxon," and he quotes "the cerebrum is irregularly crumpled or convoluted." Unfortunately, he does not mention that the cerebrum has been described and its position indicated in the preceding paragraph beginning: "If

you were to look down on the brain from above you would think it very like a large walnut with its shell off." "Convoluted" is explained, for the sentence reads: "The cerebrum is irregularly crumpled or convoluted, *i.e.*, folded together" (p. 58).

Another contracted quotation is: "I shall become short-sighted and astigmatic." This sentence, which is from the middle of a paragraph (p. 63), is: "If you don't be merciful and rest me I shall become short-sighted and astigmatic—that's seeing double edges to things, you know."

I think anyone who reads the introductory chapter will see the book is not intended for very young children. Its purpose is to show boys and girls of from eight to thirteen or so, and in as simple language as possible, how very wonderful they are in body, mind, and soul. I feel sure through your valuable periodical you will allow me to try to remove a misconception which may hinder the circulation of the book.

AMY B. BARNARD.

THE fact that Miss Barnard frequently explains her technicalities by subsequent phrases of simpler words is hardly a justification of her style. Why, to children of from eight to thirteen, use the technical terms at all? If my adverse comments concerned only a few exceptional passages, such as I quoted, they might be regarded as unfair; but such passages are all too plentiful, and though the author tempts me to quote others, I forbear, for I really should be sorry to lessen the circulation of her excellent book. But should any reader question my fairness, let him read the opening paragraphs of chapter vii. Since Miss Barnard sets out to convey scientific knowledge to young minds "in as simple language as possible," let her study the primers of Huxley, Roscoe, Lodge, and others. They, of course, had to use the terms of science, but they explained them in the language of every day. Miss Barnard, whose purpose is chiefly moral, need not even use the terms: it is sufficient if she explains the "things."

THE REVIEWER.

Apparatus to Test Lung Capacity.

CAN any of your readers tell me of a simple piece of apparatus for testing lung-capacity which could be constructed out of the apparatus usually found in a chemical or physical laboratory?

ENQUIRER.

The School World.

A Monthly Magazine of Educational Work and Progress.

EDITORIAL AND PUBLISHING OFFICES.

ST. MARTIN'S STREET, LONDON, W.C.

Articles contributed to "The School World" are copyright and must not be reproduced without the permission of the Editors.

Contributions and General Correspondence should be sent to the Editors.

Business Letters and Advertisements should be addressed to the Publishers.

THE SCHOOL WORLD is published on the first of each month. The price of a single copy is 6d. Annual subscription, including postage, 7s. 6d.

The Editors will be glad to consider suitable articles, which, if not accepted, will be returned when the postage is prepaid.

All contributions must be accompanied by the name and address of the author, though not necessarily for publication.

The School World

A Monthly Magazine of Educational Work and Progress.

No. 159.

MARCH, 1912.

SIXPENCE.

THE TEACHING OF ENGLISH IN THE HIGH SCHOOL OF THE UNITED STATES.

By ALBERT E. ROBERTS, M.A.

Lecturer in English at the L.C.C. Day Training College, Islington.

THE PLACE OF ENGLISH IN THE CURRICULUM.—English is never made an optional or alternative subject, but is compulsory in all types of schools in the United States. It forms the backbone of the instruction, and the importance of the subject is emphasised by the amount of time devoted to it. In the high school, five hours a week in the first year (age fourteen) are almost universal; in the second, third, and fourth years, four or five hours are common—the time seldom falls below three hours, and scarcely ever below three periods of forty-five minutes each. In colleges and universities it has its fair share of attention. For instance, the faculty of Harvard in English numbers thirty-three, whereas Cambridge, its mother university in England, has but three professors—a professor of Anglo-Saxon and two lecturers in English.

Courses of study are not, except in a few large towns, mapped out by the education authority so universally as in the lower school; they are usually drawn up by the heads of the department of English in each school, the syllabuses being almost invariably based on the books prescribed for the college entrance. In the college entrance requirements for 1909-11 there were (a) forty books prescribed for general reading—including five plays of Shakespeare, nine novels, six groups of essays, eleven extended poems—from all of which ten have to be selected; and (b) six for study and practice, out of which four have to be selected. These include the distinctive traits of most of the literary groups from Shakespeare to Tennyson. Some headmasters would gladly be free from the fetters that these lists, as they urge, impose. On the other hand, most feel the necessity for one coherent and continuous course of study through the elementary and the high school, and for the sake of uniformity and to prevent unnecessary overlapping they advocate that such a course should be mapped out by the education authority. Some of the large towns have such a

continuous course—not a procrustean one, rigid and inflexible, but one that leaves considerable latitude for the display of the teacher's individuality.

PRINCIPLES UNDERLYING THE COURSES OF STUDY.—The schemes in the various towns and schools differ considerably, but exhibit some general principles. The course is almost invariably arranged so that the literature may be a constant illustration of the work done in the composition. The two subjects are "pursued side by side throughout the entire course, and are so related that one may supplement and strengthen the other." Narration, description, exposition, and argumentation form the basis of the work in each of the four years. In the first year the initial emphasis is on the narrative type, such authors as Scott, Poe, Tennyson, Lowell, Whittier, Browning, Stevenson, and Kipling being largely drawn upon. The composition follows the literature in focussing the attention upon narration and its principles.

In the second year the body of the work in literature and composition is based on the descriptive type, and Goldsmith, Irving, Hawthorne, Lowell, Poe, Blackmore, George Eliot, Milton, and Gray are among the authors chosen. The essay—e.g., Macaulay, Bacon, Ruskin—forms the basis of the expository works of the third year; and Burke's Speech on Conciliation generally furnishes the principles of argumentation studied in the last year.

An examination of the course of study in use in the high schools of the large towns in the United States shows the above is the main principle of selection of the books for study. There is, of course, always an attempt to grade the books according to the interest and difficulty of subject-matter. Other principles, however, such as the following, sometimes underlie the choice:—

(1) Some courses are drawn up on a chronological basis, masterpieces being chosen as representative of some period of important literary movement.

(2) Some are drawn up "anachronologically"—i.e., modern authors, especially American, are studied in the earlier years, and such authors as Chaucer and Spenser are postponed until the end

of the school course. In other words, the near and the familiar is considered before the strange and remote.

(3) In some, prominence is given to the following literary forms: First year, the novel; second year, the lyric; third year, the essay; fourth year, the epic and drama.

(4) Some courses are drawn up partly on a psychological basis. In the first and second years the ethical or emotional purpose is uppermost; in the third and fourth years the intellectual predominates, the books chosen during these years being of a reflective or critical nature.

(5) Attention is paid to correlation with other subjects such as history, geography, music, and foreign languages, but correlation is never allowed to hamper the teacher of English.

METHOD OF TREATMENT OF LITERATURE.—The following points in the method of treatment of books for study will perhaps give some idea of the work. Attention is paid to the form as well as to the content. The ideas and the action are considered of primary importance, but the method of expression is not neglected. It is universally believed that the intellectual activities do not necessarily destroy æsthetic appreciation, and so a study of a certain amount of detail is considered necessary. Over-minute analysis and lack of consideration of detail are equally avoided.

Emphasis, in the following order, is laid on:—

(a) The meaning of the author. The significance of the whole, as a work of art, is grasped before its parts are examined.

(b) The method of the author: structure and characterisation.

(c) The style.

(d) The life of the author and his relation to literature. The history of literature is treated side by side with the books read. The life of the author is usually studied after some of his works are read, except in the instances in which a study of certain points in the author's life helps the child to appreciate the subject-matter and is indispensable to that appreciation. Usually, where possible, the facts concerning an author's life are got from his writings first.

It is noteworthy that in the college entrance examination, as additional evidence of preparation, the candidate may present an exercise-book (properly certified by his instructor) containing compositions and other written work. This is an advance upon older examination methods.

LITERARY EQUIPMENT OF THE SCHOOLS.—The schools are liberally equipped with necessary apparatus by the educational authorities, and it would be well for us here to pause and remember that good English work in our own schools is impossible without the proper apparatus. Every high school has its well-stocked school library, often in the charge of a trained librarian. Text-books sufficient in number for all the members of each class are supplied free. The text-books which contain the literary works for class study have brief notes, supplying such information as cannot easily be obtained by the pupil; but they

are not, as a rule, over-annotated. Abridged editions—*e.g.*, of Scott's novels—such as are now on the English market, do not appear to have yet reached America. Dictionaries are supplied for every pupil.

COMPOSITION AND RHETORIC.—The composition in the high school is put on the basis of rhetorical principle. The grammar of the elementary school is revised, but the work is now put on a higher level and the students pass from the study of grammar to that of rhetoric. Literature is regarded as the greatest teacher of the principles of composition. From the works of art themselves are studied the principles underlying them—*e.g.*, the principles of "unity," "mass," and "coherence" are examined and applied in the pupil's own compositions.

Rhetoric, or the science that sets forth the principles which underlie the art of composition, is not studied as an end in itself, but as a means to an end. The study and unconscious imitation of literary models does not in any way exclude the development of initiative and originality in the pupil.

Narration, description, exposition, and argumentation are emphasised each in their turn during the four years' course, though any type of work may be done at any time. The method of procedure is, as in the elementary school, from the whole composition to the paragraph, and then to the sentence, and finally to the words composing it—not in the reverse direction. The examination of paragraph or sentence will therefore precede, as a rule, minute word study. Text-books on rhetoric are used chiefly for reference. Probably no country in the world pays as much attention to rhetoric as America.

The amount of composition done varies from the daily theme to the weekly exercise. Oral work is frequent, often in the form of debates. Outlines of essays are sometimes made during school-time and written on the slate boards, and criticised there and then; in some later lesson they are developed. One long exercise requiring considerable thought and some research is required of every student each term. In the case of the daily theme two or three of the best and worst are selected for class criticism. Portions only are read and corrected in writing by the teacher each day after the exercises are handed in.

ORATORICAL WORK.—The debating society and school senate are everywhere popular. Voice-training, declamation, elocution, and public speaking figure in many school programmes: in nearly all they receive some attention. Let me quote as one instance the Chicago high school course:—"Public speaking will include declamation, the reading of themes, debates, orations, and simple plays. As far as possible material will be taken from the books read in class, so that the work in public speaking, like the work in composition, will deepen and illustrate the work in literature."

The various colleges, too, generally include oratory—public speaking, argumentation, and debate—in their programmes. One, the Emerson

College of Oratory, Boston, is devoted exclusively to various phases of this work. It is the largest institution of its kind in the world for the training of speakers and platform orators.

THE TEACHERS OF ENGLISH.—In the high schools there are no form masters as with us—one teacher usually takes one subject. The teaching of English is therefore in the hands of one who is, or becomes, more or less a specialist. Some modification of this departmental work is to be found sometimes in the seventh and eighth grades of the elementary schools, and should perhaps be more widely extended to bridge over the sudden change of method between the elementary and high schools.

The specialist in English can now receive his training at one of the six or seven universities which offer facilities resembling those offered at Teachers' College, Columbia University, where the training in English includes:—

(1) Academic courses in literature, philology, grammar, composition, and rhetoric.

(2) Professional courses in the study of English from the teacher's point of view, including the observation of model lessons and practical teaching.

(3) Educational courses of a general nature—*e.g.*, history of education, psychology.

ENGLISH IN THE COLLEGES AND UNIVERSITIES.—No student can gain a degree without a sound knowledge of the subject. The English courses at Harvard include (1) Old English, (2) rhetoric and composition, (3) literature, (4) the history of principles of versification, (5) forms of public address, (6) debating, (7) courses in research work, (8) comparative literature.

The method followed is generally that of a combination of recitation (*i.e.*, oral lesson) and lecture. Discussion is encouraged. The Harvard courses are typical of the work done in the best American universities. Emphasis is everywhere laid on public speaking. The Johns Hopkins undergraduate course, for example, includes (a) reading and platform speaking, (b) forensics—principles of argumentation, practice in argumentary writing and debate; parliamentary procedure. Prize contests here are held annually in public speaking and in debate. A course in debating which involves the study of parliamentary law, the collection and arrangement of material, and frequent practice in debate under the direction of an instructor, is assigned to the third-year work.

At Yale the courses include one on the practical aspects of bibliography, another in verse composition, with fortnightly practice in standard verse forms, regular periods being set aside for consultation with and criticism by one of the professors.

REMARKS.—From the foregoing remarks it will be evident what excellent work is being done. There are two defects, however, which seem to the writer to be general. First, careless articulation is almost universal, despite the emphasis laid on oral expression; secondly, there is a tendency to let the practicality of American life encroach upon the province of English literature. "As to modern

methods," it is said, "the best of all is the teaching of the four related topics of expression, literature, language, and rhetoric as one organic group of studies, wholly interdependent and progressive." This recognition of the organic unity of English is admittedly good; yet herein, it seems, lies the basis of one of the chief mistakes made in the teaching of the subject. Literature and composition and rhetoric are regarded as wholly interdependent and scarcely, in any circumstances, to be divorced; and, as a consequence, in literature the æsthetic is all too often subordinated to the intellectual process. In other words, the chief aim in literature is made subordinate and contributory to the practical idea of training pupils in expression. The "vocational" aim, in short, supplants the "cultural." The college entrance requirements are to some extent to blame for this. For instance, with reference to the examination on the books set for detailed study, the candidate is required to answer questions involving the essentials of English grammar: the power to write good English is the chief thing asked for, and undue emphasis is laid on rhetoric and the rhetorical analysis of literary models. Students are, as a result, taught to be too critical readers of literature. Over-analysis means death to literature, and criticism, we must remember, is opposed to creation. The interpretative side of literature is, after all, really the most important, and the expressional should be subordinated to this. It is the tendency of American life to material and rationalistic practicality that makes the teacher reverse the process and demand daily themes of the pupil, even though the teacher has no time to correct them. Yet, as a whole, there is no greater weight being brought against utilitarianism, no more effective instrument of spiritual discipline to counteract the "pleasure-loving and self-indulgent tendencies which are fostered by the life of great commercial cities," no more vitalising dynamic likely to awaken the sleeping conscience to a sense of the commercial, civic, and social corruption, than the efforts the American teachers are making, through the instrumentality of English literature, to put the future generations of America on a higher plane of life with purer ideals and with nobler aspirations.

WEATHER STUDY FOR SCHOOLS

By W. MACLEAN CAREY, M.A., B.Sc.

Second Master of Rutlish Secondary School, Merton, S.W.

TEACHERS of geography are now agreed that a knowledge of the principles of meteorology is necessary to the proper understanding of climatology, and the interpretation of the daily weather maps of the Meteorological Office finds a place in the syllabus in geography for the University Local and other public examinations for schools. Meteorology is essentially an observational science, and, accordingly, the keeping of records of the weather-elements has become a part of the curriculum of many schools.

The conditions under which the meteorological observations are necessarily made would not, perhaps, satisfy the requirements of the Meteorological Office, but from the point of view of the teacher of geography, the observations serve their purpose if they enable the pupil to understand the climate of his own country, and prepare him for the study of other climatic regions.

As Prof. W. M. Davis says, "No school study suggests more frequent questions from scholars or allows more educative replies from teachers than meteorology," and, again, "There are few subjects better adapted to the inculcation of scientific methods than the study of weather changes." The teacher who is desirous of making this study of educational value cannot do better than adopt the syllabus of "Weather Study for Elementary Schools," approved by the Meteorological Office. Typewritten copies of this syllabus are issued by the Office at the price of one shilling each.

The course outlined in the syllabus consists of three sections. The first section, "Watching the Weather," deals mainly with observations of wind direction and velocity, the temperature and humidity of the air, the character of the clouds and their movements, measurement of rainfall, and the keeping of weather records. The "Observer's Handbook," an annual edition of which is published by the Meteorological Office, will be found to furnish replies to the questions arising in this section, and should be used by all schools where regular observations of the weather are made. A certain number of copies of the 1908 edition are left over, and the Director of the Meteorological Office is willing to make arrangements for the issue of the remainder of that edition to schools.

In the case of junior forms it may be necessary for the teacher to give some preliminary instruction in the meaning of the cardinal points and the methods of ascertaining them, before observations of wind direction are possible. If the school is fortunate enough to possess a wind vane, there is little difficulty as regards observations made at the school, but in order that the pupils may be able to find for themselves the wind direction at any time, they should be able to ascertain the north point by the aid of a compass or by a watch when the sun is shining, or by the Pole Star at night. As a practical exercise, a model of a weather-cock or arrow-shaped wind-vane might be made in cardboard, mounted on a cotton-reel, and supported on a suitable pivot. Then the pupils can satisfy themselves that when a steady current of air is directed upon the model the head of the cock points "up the wind." Observations of wind velocity will necessarily be non-instrumental, and only rough estimates are possible. These should be made by watching the effect of the wind on dust, loose paper, trees, &c., as shown in the table on p. 41 of the "Handbook."

Mr. D. W. Horner, in his useful little book on non-instrumental meteorology, entitled "Observing and Forecasting the Weather" (Witherby), suggests a scheme for estimating wind velocity

from the movements of a "burgee." For obtaining the shade temperature and hygrometric condition of the air, the dry bulb, the wet bulb, and the maximum and minimum thermometers require to be exposed in a screen. A Stevenson thermometer screen is, therefore, an almost indispensable adjunct to the geography equipment, and can be made in the school workshop at very little expense, if the full instructions given in Appendix II. of the "Handbook" are carried out. Children are always interested in simple hygrosopes of seaweed or catgut, and the writer has found Mitchell's Spiral Hygroscope (price 7s. 6d., from Messrs. Townson and Mercer) of great use for checking the readings of the Mason's Hygrometer. If a grass surface is available, a terrestrial radiation (grass minimum) thermometer may be exposed upon it, in order that the number of nights of ground frost may be recorded.

Most teachers of geography are familiar with the illustrations of cloud forms in "Hints to Meteorological Observers" (Stanford), and the plate accompanying the article "Cloud," in the new edition of the "Encyclopædia Britannica." An excellent set of coloured cloud views, classified according to international nomenclature, can be obtained from the Hydrographic Office, Bureau of Navigation, Department of the Navy, Washington, D.C., U.S.A., price 40 cents, or, in book form, with descriptive text, price one dollar. The views, when framed, are an attractive addition to the furnishings of a class-room. "Instructions for Observing Clouds" is the title of a little pamphlet, by the Hon. Ralph Abercromby, which the teacher may find useful.

Section II. of the syllabus is entitled "Looking Out for Changes in the Weather," and deals with the proper use of the barometer as a weather-glass, and the construction, interpretation, and practical utility of weather maps. For a subscription of £1, the daily weather report is sent post-free every day for a year; for 5s. it is sent for a quarter. Surplus copies of charts prepared for exhibition, or back numbers of the D.W.R. are available for teaching purposes, and may be obtained from the Director of the Meteorological Office free of charge, but the cost of postage must be defrayed. If notice is given beforehand, additional copies of the D.W.R. for one day, or a succession of days, will be printed off, and supplied for class use at the rate of 7d. for ten copies, exclusive of postage. Weekly weather reports and monthly weather reports are also issued by the Office, price 6d. each. The latter contain charts showing barometer and wind, movements of depressions, distribution of mean temperature, hours of sunshine, and rainfall for the month.

Three important articles on "The Construction and Reading of Weather Maps," by Mr. E. Gold, which appeared in the issues of THE SCHOOL WORLD for July, August, and September, 1909, bear directly on the subjects studied in this section, and amongst the publications of the Meteorological Office, "Aids to the Study and Forecast of

Weather," by Mr. W. Clement Ley, is especially suitable for teachers. The readings of the school mercury barometer should be corrected for altitude and temperature, in order that they may be comparable with the pressures recorded in the D.W.R. For detecting changes of pressure in unsettled weather, an aneroid barometer is convenient;

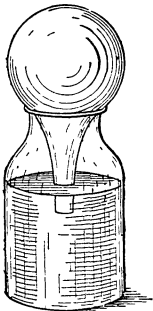


FIG. 1.—A Flask Barometer.

during calm, anticyclonic weather the daily oscillation of pressure is easily noticeable. The writer has found a class of boys much interested in what may be called a "flask-barometer." Each member of the class purchased a 250 c.c. flask at half-price, from the Physics Laboratory, inverted the flask in a glass jar containing water (Fig. 1), and took a series of readings of the height of the column of water in the neck of the flask (see p. 255, "Introduction to Practical Geography," by Simmons and Richardson). This is a form of sympiezometer, complicated by the presence of water-vapour. The volume of the enclosed air is, of course, affected by the temperature and pressure of the external air. It is similar in action to the Dutch weather-

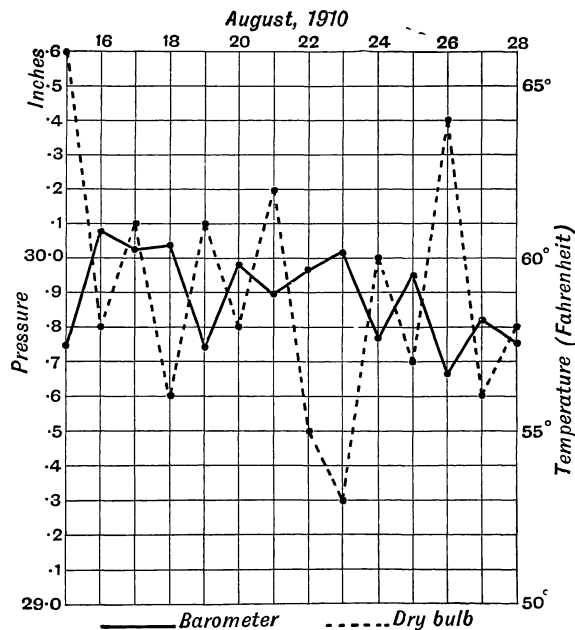


FIG. 2.—To illustrate the principle of the Flask Barometer. During unsettled weather a decrease of pressure is accompanied by a rise in temperature and vice versa. The chart shows the barometrical pressure and the shade temperature at 7 a.m. each day at St. James's Park, London, and is drawn from data supplied in the *Daily Weather Report*.

glass advertised in *Nature* as "absolutely reliable," and its success as a weather-glass depends upon the facts that, with the approach of a cyclone, the pressure falls and the temperature usually rises, both resulting in the expansion of the enclosed air and the shortening of the column of water in the neck of the flask. The fall in temperature with

a N.W. wind, and the increase of pressure in the rear of a cyclone both unite in causing a lengthening of the water column. This relation between the air-pressure and temperature during cyclonic weather is strikingly indicated in Fig. 2, in which the barometrical pressure and the temperature of the dry bulb are shown for 7 a.m. daily at St. James's Park, London, during the period August 15th to August 28th, 1910, when the British Isles experienced a succession of cyclones travelling eastwards from the Atlantic. (The readings are from the D.W.R.)

The flask barometer and water sympiezometer (Fig. 3) are still used as weather-glasses in Cornwall, and a comparison of the readings of an instrument of each of these types with those of an aneroid barometer seems to show some justification for the old-fashioned forms of weather-glass. This research was undertaken by a pupil of the writer during the Christmas holidays, 1910, at Wimbledon. The readings of the barometers and thermometer were taken at 9 a.m. daily under similar conditions. Fig. 4 shows a comparison between the readings of the flask barometer and the aneroid barometer, while the readings of the sympiezometer and the thermometer are shown in Fig. 5. Another pupil has on his own initiative constructed a model aneroid barometer from the instructions given in "Object-lessons from Nature," by Prof. L. C. Miall (Cassell). In "Physical Determinations," by

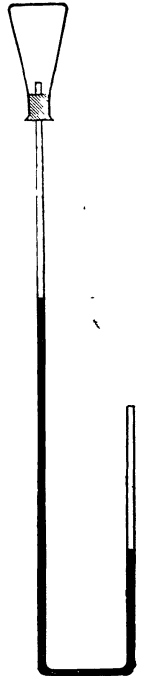


FIG. 3.—A Water Sympiezometer.

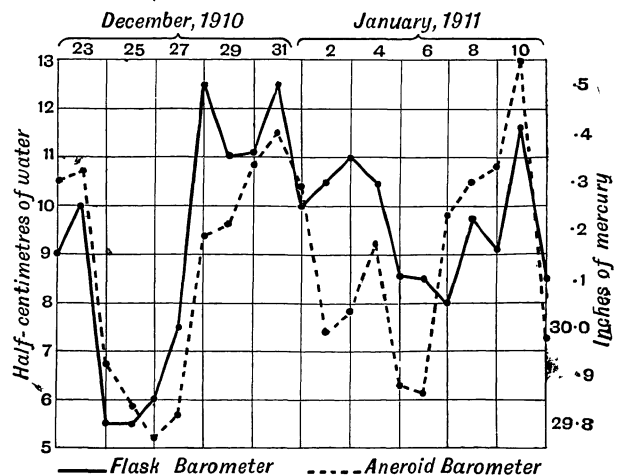


FIG. 4.—The chart shows the readings of a Flask Barometer and an Aneroid Barometer taken under similar conditions at 9 a.m. daily at Wimbledon during the period December 22nd, 1910, to January 11th, 1911. Cf. Fig. 5.

Mr. W. R. Kelsey (Edward Arnold), will be found instructions for making an air barometer by inserting a bead of mercury in a glass tube closed at one end.

The method of constructing the maps of the Weather Report will be understood best if maps of a typical cyclone and a typical anticyclone are drawn from the data in the D.W.R. These maps may be compared as regards height of barometer, direction of general circulation of the air, wind-

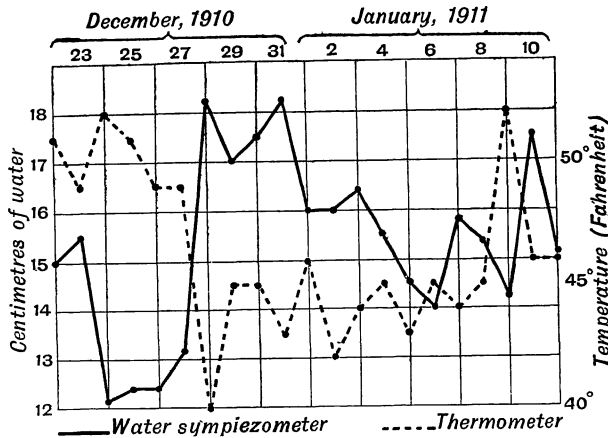


FIG. 5.—The chart shows the readings of a Water Sympiezometer and a Thermometer taken under similar conditions at 9 a.m. daily at Wimble don during the period December 22nd, 1910, to January 11th, 1911. The figure should be compared with Fig. 4.

force, rainfall, &c. The relation of barometric gradient to wind-force may be discovered and Buys Ballot's Law enunciated. The relation of barometrical pressure to rainfall may be shown as in Fig. 6. The state of the sky and weather associated with different parts of a cyclone, and the shifting of the wind for different positions of

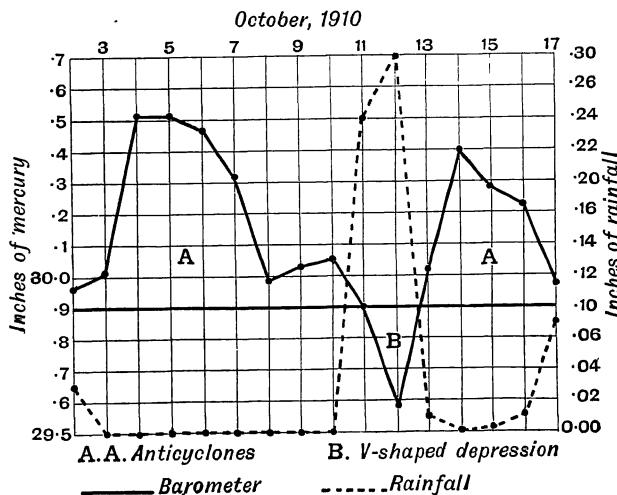


FIG. 6.—To illustrate the relation between barometrical pressure and rainfall. The chart shows the pressure at 8 a.m. and the rainfall each day at St. James's Park, London, during the period October 2nd to 17th, 1910, and is drawn from data supplied in the *Daily Weather Report*. Note.—The standard or normal atmospheric pressure is marked by a thick line.

the centre with respect to the observer are best studied by watching actual weather conditions as opportunity offers. With daily practice of this kind it is expected that the pupils will become amateur forecasters and be able to answer such queries as the following, suggested in the syllabus: What weather is to be expected—

"(1) When the wind is backing from the westward to the southward and the barometer has begun to fall?

"(2) When the wind is veering from southward to westward and the barometer has begun to rise?

"(3) When the wind is backing from south to east and the barometer is falling?

"(4) When the wind veers from north to east and the barometer is falling?"

Anticyclonic conditions in winter and summer may be compared as regards temperature and state of sky, and observations made of the types of weather associated with V-shaped depressions, ridges or wedges of high pressure, secondaries, and straight-lined isobars. Other suggestions for practical work will be found in the "First Book of Physical Geography" (Macmillan), by the writer, and many useful hints are contained in a paper on "The Weather Report and the Teaching of Geography," by Mr. J. Fairgrieve, printed in vol. v. of *The Geographical Teacher*. "Weather," by the Hon. R. Abercromby (Paul, Trench), and "Some Facts about the Weather," by W. Marriott (Stanford), should be familiar to every teacher of geography, and a store of suggestive information is contained in "Practical Exercises in Elementary Meteorology," by R. de C. Ward (Ginn).

Attention may be directed to the Weather Indicator compiled by Mr. W. Ballance (Philip). This is a large wall-chart containing an analysis of common signs for inferring the coming weather, a classification of clouds, facts concerning the wind, meteorological instruments, &c.

"The Weather of the British Isles in relation to other parts of the World" is the title of the last and most important section of the syllabus. This part of the course of study is concerned with the average values of atmospheric conditions rather than with particular values, and with the classification of large areas of the globe over which the average conditions are similar; or, in other words, the study of climate is developed from the study of weather. A "Barometer Manual for the use of Seamen" (price 3d., from the Meteorological Office) is specially applicable to this portion of the syllabus, and is recommended for teachers' use. Amongst the plates contained in the Manual are isobaric charts of the world for February, May, August, and November, and charts for January and July showing pressure and wind (direction and force). If the method of construction of the daily pressure charts has been grasped firmly, these charts will present little difficulty. It will be noted that where the relative distribution of mean atmospheric pressure is known, Buys Ballot's Law enables us to indicate the direction of the prevailing winds. Further, it will be evident that some parts of the world "have hardly any wind at all (centres of high-pressure area over the sea); some a steady wind all the year round (trade-wind regions); some a wind regularly in opposite directions at different seasons of the year (India, Japan, British Columbia, and North Australia); some a wind that is seldom steady for many days

together, and generally changes within the day (British Isles, Iceland, New Zealand)." Experience derived from the daily watching of the weather will have served to show the connection between temperature and wind direction, and to emphasise the work of the winds as convection currents distributing the warmth derived from insolation. A comparison of the isobaric and isothermal charts of the world shows a similar relation of temperature to direction of prevailing winds.

As another instance of the way in which the D.W.R. giving *actual* conditions throws light on charts showing *average* conditions one might take the D.W.R. of January 17th, 1911, which indicated that an anticyclone in which the highest pressure was 30.9 inches was centred over Munich, where 36 degrees of frost were recorded. The isobars and isotherms on that chart may well be compared with those drawn on the January pressure and temperature maps of Asia. The study of the characteristics of Atlantic cyclones will help to the better understanding of the smaller but more violent tropical storms, such as typhoons, hurricanes, tornadoes, &c. An important aspect of the relation of the various meteorological phenomena to human life is presented in the Monthly Pilot Charts of the North Atlantic and of the Indian Ocean (the price of these ocean charts is 6d. per copy, but back numbers can be obtained from the office on special terms). As presented in these charts, the movements of the wind-belts, the change of the monsoons, the distribution of ice, storm tracks, ocean currents, &c., become real facts affecting human activities and the intercourse of nation with nation.

In conclusion, it may be suggested that the aim of the teacher should be to make the science of weather study not a school task, but a hobby which the pupil may develop in after life, for, as Ruskin says, "Its interest is universal, unabated in every place, and in all time."

ECCLESIASTICAL TERMINOLOGY.

By A. JOHNSON EVANS, M.A.

IN the teaching of sixteenth- and seventeenth-century English history there is generally much confusion in the use of ecclesiastical terms. This arises partly from the difficulty of definition and the lack of suitable words, but also from the loose phraseology of text-books and the want of knowledge of teachers, or at least their lack of clear perception of the questions at issue. While the teaching is thus at fault, our pupils consciously or unconsciously make a curious amalgam of the confused terms of their text-books and the often as much confused terminology they hear at home. I have noticed in examination papers of recent years some examples of the result of this process. To some, "the Church of England" is not necessarily the Established Church. I find, e.g., that "Oliver Cromwell and his supporters" were "dissenters" in the time of the Protectorate, that they "deposed the Church of England," but

that it "became the Established Church as a result of the passing of the 'Clarendon Code.'" To some the "Church of England" is synonymous both inclusively and exclusively with Protestantism in this country ("Oliver Cromwell abolished the Protestant Church"), while others have their doubts on this subject, for "Mary Tudor found the existing religion to be Protestant [*sic*] Anglican." Again, the Church of England is identified with episcopacy to the exclusion of the churches in connection with Rome, for we are told that "Mary Tudor abolished episcopacy." It is quite exclusive of Presbyterianism, and much more of Puritanism. "Monmouth was a Protestant, but he encouraged Puritanism"; and James I. "sought to make Puritans Protestants."

Some, however, thinking that the "Church of England" is identical with "Established Church" extend this view to Scottish history, and we are told that in the time of the early Stuarts "the Scots wished to maintain Presbyterianism against the Established Church of Scotland," that "Knox introduced the Nonconformist religion into Scotland," and that "James I. had been brought up in the Nonconformist country of Scotland." Some idea of the confusion of thought to which this laxness leads may be gathered by comparing these two answers: (a) "James I.'s motto was 'No bishop, no king,' therefore he favoured Catholics"; (b) "James I.'s motto was 'no bishop, no king,' therefore he favoured Protestants"; and the sympathies of our readers are bespoken on behalf of the youngster who, evidently knowing his history, was so hampered by the terminology with which he was supplied that he wrote, "Mary Tudor tried to make the country Roman Catholic; in Elizabeth's reign the Church of England was the Established Church; during Edward VI.'s reign the country was more Puritan in feeling than anything else; during Charles II.'s reign the country was quite opposed to Puritanism" (note that he omits the Commonwealth; his teachers had not defined matters for him there).

What is the root of this confusion? Partly because we cannot, on account of our ecclesiastical differences, agree on a scientific terminology. I have quoted one answer which shows the doubt as to whether the Church of England is "Protestant" or not, and the difficulty of finding an alternative word when faced with Mary Tudor's "Catholicism" ("Anglican," of course, means no more than "English"). Here are two others, which will be specially interesting to Congregationalist readers, and illustrate a point of view that makes definition difficult: (a) "The power of the Independent army in the Commonwealth time was so great that Presbyterians were only just tolerated, Anglicans were forced to become Presbyterian, and *even a lower form of religion than that.*" (b) "The Puritans wanted only freedom of religion, and a church, *if it may be called so*, without bishops." With folk who use the word "church" for episcopal organisations only, the historian can, of course, have nothing to do. He would not know how to read

the controversialists of the sixteenth and seventeenth centuries.

But, setting aside this difficulty, the "root of the matter," as I have called it, lies in the failure to see the similarity of the work typified by the action of the two Cromwells, Thomas and Oliver. Everyone agrees that from the time of Magna Carta there has been an *ecclesia Anglicana*, which has had peculiar relations with the *res publica Anglicana*, or English State. Everyone agrees that Henry VIII. and Thomas Cromwell effected a change in those relations in order to sever the connection with Rome. And it is only Roman Catholics (who thereby make ecclesiastical terminology difficult for themselves) who refuse to regard the Provinces of Canterbury and York, as regulated by Henry VIII. and his Parliaments, as anything but the Church of England. "Heretical" or "schismatic," if you will (these are superfluous epithets), but still the English Church. Now this Church, thus independent of Rome, could be guided in whatever direction her master, the English State, chose, whether in forms of government, forms of creed ("articles of religion," if that phrase is preferred), or forms of worship. I need not follow the well-known story of the Tudors: how the ecclesiastical parties warred under Henry VIII. with alternating fortunes, how under Edward VI. the creed was Protestant (using the word in its large, popular sense, not in the technical meaning it has in German history) and the form of government was rapidly tending towards Presbyterianism; how Mary undid the work of her brother and her father; and how Elizabeth did "in all things as her father had done," save that forms of worship were changed with conservative moderation, and that, after some years, the creed finally settled down in the well-known "Thirty-nine Articles," in addition to the three ancient "creeds" of Western Christendom. All these changes were brought about, whatever ecclesiastical partisans may say as to the co-operation of the Convocations, by the action of the "King-in-Parliament."

Now why should we not apply the same method of description to the history of the seventeenth century? The fluctuations were violent and rapid, but not more so than in the short reigns of Edward VI. and Mary. Edward reigned six years and a half, Mary five and a half. The Long Parliament was the ruling power in England from June, 1645 (battle of Naseby), until April, 1652, nearly seven years. Oliver Cromwell ruled from that date until his death in September, 1658, six years and a half. It is true that all that happened between 1642 and 1660 was undone under Charles II., but the same fate befell the work of Edward VI. under Mary, and of Mary, under Elizabeth. And in both centuries each government believed, as all governments believe, that its rule would be permanent. Thomas Hobbes in his "Leviathan" (chapter xlvii.), written under the Protectorate, evidently thought we had come to a "settlement" in ecclesiastical matters. Now what happened?

The English State (*i. e.*, the Long Parliament), with the help of the Westminster Assembly of Divines (their equivalent for Convocations), made the Church of England Presbyterian. They abolished Episcopacy, substituted the Directory of Public Worship for the Book of Common Prayer, and went far towards adopting the Westminster Confession of Faith as a substitute for the Thirty-nine Articles. All this can be paralleled by events of the sixteenth century: the treatment of bishops by Edward VI., the substitution of the Prayer Book for the Missal, the adoption of the Thirty-nine Articles, &c.; and if the Long Parliament had succeeded in converting Charles I. to these changes, the whole might now have been the established form of religion in this country. But they were between an impossible king and an irremovable army, and, as in 1553 and 1558, there was a change of government (expulsion of the Long Parliament and, after an interval, inauguration of a Protectorate).

The Cromwellian creed of the Established Church was embodied in the Instrument of Government, and later in the Humble Petition and Advice, and it is remarkable for its shortness. To what it would have grown under the leading of the Congregationalist advisers of Oliver is known, but only to a few. The Church of England was "chaotic" under Oliver. That is, he cared little what a man believed in matters of doctrine or of church government so long as he was generally "sound"; and therefore so long as rectors or vicars were not troublesome to the Government, some might be episcopally minded (though there were no bishops), or Presbyterian, or Congregationalist of all varieties. Of course, the tendency was towards Congregationalism in church government, though rights of patrons were still respected to a certain extent, and in forms of worship "every man did that which was right in his own eyes," as, indeed, they had done in out-of-the-way places, until Archbishop Laud introduced "Thorough." If anyone wants to know if this was the Church of England" or an "Established Church," let him or her read George Fox's journals.

To clear the confusion thus indicated, let us adopt for the purposes of scientific history, ignoring the peculiarities of ecclesiastical partisans, this terminology: "The Church of England was connected with Rome; Henry VIII. broke that connection; Edward VI. made the Church ultra-Protestant ('Puritan' if you will); Mary undid her predecessor's work; Elizabeth made the Church independent of Rome again, and it became in the popular sense of the word 'Protestant.' Some members of the Church were Puritan, and desired further changes, even Presbyterianism. Others separated from it, and formed (not 'established' but) separate churches, ultra-Protestant, Congregational. It was some of these last who emigrated in the *Mayflower* to New Plymouth. Afterwards some Puritans followed them, and founded the theocracies of the rest of New England. In Charles I.'s reign these various parties came to blows. The Church of England was made first

Presbyterian by the Long Parliament, then 'Congregational' (or 'chaotic') under Cromwell, and then Episcopacy (not the 'Church of England') was restored under Charles II." Puritans were all Protestants; Roman Catholics were and are Episcopalian; the Church of Scotland wavered between Presbyterianism and Episcopacy according as her kings were weak or strong against the Lowlanders, but of course it was never Non-conformist. An Established Church can never be that. It is a contradiction in terms.

COMBUSTION—THE PHLOGISTON THEORY.

By W. A. WHITTON, M.Sc.

The County Secondary School, Holloway, N.

IN every elementary course of chemistry to-day one of the first problems put before the boys is that of combustion. The reasons for this are not difficult to appreciate, for the solution of the problem admits of easy experimental work, and after the experiments have been performed they can all be brought together to elucidate the work of Lavoisier and give the boys an introduction to a well-established chemical theory.

It does not appear to me, however, that the full educational value of this problem is usually obtained. Before the time of Lavoisier there was a well-known theory of combustion which had been extended to cover the whole field of chemistry, and enjoyed the full confidence of chemists for more than a hundred years: this was the theory of phlogiston. No boy could be expected to suggest this theory for himself, but it seems to me an excellent practice—one tested by experience—to put this theory before the boys as far as possible, show them how it was used to explain the phenomena of combustion, and invite them to consider how far it is in accordance with their own experimental results.

At this stage of a boy's work in chemistry he is somewhat inclined to despise chemistry, particularly in comparison with the sister science, physics. A great deal of disjointed work has been done in order to learn the art of elementary chemical manipulation, and there has been very little to interest any intellectual boy. The introduction of the phlogistic theory shows that chemistry consists of more than mere receipts, and at the same time shows how a theory, which has facts against it, must eventually be discarded, in spite of all the efforts of its most ardent supporters.

The theory of phlogiston is a well-worn theme, but it may be of interest to show how it can be used in a class of boys whose average age is thirteen. The usual experiments on combustion are first performed by the class. Those chosen are:

(1) Experiments to show a gain in weight when magnesium, phosphorus, and a candle burn in air.

(2) Experiments to show that when magnesium

and phosphorus burn under a bell jar there is a diminution in the volume of the air.

(3) Experiments to show that lead, copper, and tin gain in weight when heated in the air, even though they do not burn with a flame: the changes in appearance are particularly noted.

(4) Phosphorus is burnt in a closed flask, and the amount of air which disappears is exactly measured by allowing water to enter the flask after the combustion.

(5) Candles are burnt in bell jars of different sizes, and the time during which they burn noted.

(6) Phosphorus will not burn in a flask from which the air has been removed by an air pump, but does burn on admission of air.

(7) Preparation of oxygen from red oxide of mercury.

Experiments 2, 5, and 6 usually take the form of demonstrations.

These experiments clearly show that when substances burn they increase in weight, and at the same time a portion of the air is used up. In oxygen prepared from the red oxide of mercury, which can itself be got by heating mercury, the boys have a gas which will support combustion better than common air will: I usually give the name "fire-air" to the gas at this stage.

The class is now in pretty much Priestley's position, and is invited to consider how Priestley explained the facts. The talk, for it is not a lecture, and is accompanied by numerous questions, goes in this way:

Fire has always been of the utmost importance to man, and so has always had great interest for him. The early Greek philosophers thought that it was one of the four elementary substances from which all others could be obtained; the other elements were air, earth, and water. These ideas with very little alteration continued to hold men's minds till the middle of the seventeenth century, when Johann Becher, who was born in 1635 and lived until 1682, suggested that combustible substances contained something which escaped during the process of combustion. This "something" he called *terra pinguis*.

This theory, however, did not make much headway till Georg Ernst Stahl used Becher's idea and worked it up into a theory which, though first started as a theory of combustion, was gradually extended to form a complete theory of chemistry and commanded the adherence of every chemist of those times.

The phenomena of combustion were explained by the theory as follows. All combustible substances contain a combustible principle, which Stahl called "Phlogiston." During burning this phlogiston escaped, and the flame, heat, and light were caused by the violent expulsion of this substance. The ash or calx which was left behind was the original substance minus phlogiston. Substances like a candle or charcoal, which burn completely away, were supposed to consist almost entirely of phlogiston, while substances which do not burn so well contain less phlogiston and more calx. In the case of a substance like lead, the

phlogiston only escapes slowly, and so the combustion is not accompanied by a flame: the formation first of a yellow and then of a red calx is explained by the escape of the phlogiston in stages, the amount of phlogiston present explaining the alteration in colour. When a calx is heated with a substance like charcoal, which is almost pure phlogiston, the phlogiston is restored to the calx and the metal reproduced.

Air in which a substance had already burned was no longer capable of supporting combustion, because it was full of phlogiston, and so no more could escape into it: such air was called "phlogisticated air," while air in which substances burnt more readily than in common air was called by Priestley "dephlogisticated air," denoting that it was eminently capable of taking up phlogiston. If this theory is accepted, it is clear that when phosphorus burns phlogiston escapes from it, the air in which it burns becomes filled with phlogiston, or phlogisticated, and so rendered unfit to support combustion, and similar remarks apply to all the other cases examined.

When boys are asked to comment on this theory one weak point is nearly always picked out. If phlogiston escapes from a burning body, how is it that the products of combustion weigh more than the original substance? In the discussion of this objection it is pointed out that these facts were known to the phlogistians from the work of Rey and others. Rey, as early as 1630, had shown that tin increased in weight when it was heated in the air, and was of opinion that this increase in weight was due to minute particles of air becoming fixed in the calx. Boyle, Hooke, and Mayow held similar opinions, and the exact words of these men can easily be quoted to the class from the *Alembic Club Reprints*.

It is not likely that the way in which the phlogistians got over this difficulty will occur to the boys. They assumed that phlogiston was the "principle of levity," and that when it escaped from a body there was a consequent increase in weight. If this assumption is allowed the first objection is disposed of.

Other objections generally come fairly quickly; if burning only depends on the escape of phlogiston, why should a candle go out so much sooner in a small bell jar? Why should not phosphorus burn in an evacuated flask? Why should not magnesium burn when covered with sand? A phlogistian can very easily dispose of the first query, for it is clear that the smaller the bell jar the sooner will the air inside it become completely phlogisticated, and so put out the candle. The second and third queries are more difficult, and the only refuge seems to be the assumption that if air is not present the phlogiston is unable to escape.

The most difficult objection is the diminution in the volume of the air when the combustion takes place in a closed space, and unless phlogiston is endowed with some other principle referring to space, in the same way as the principle of levity refers to weight, it is hard to see how this diffi-

culty can be overcome. During the past year one boy suggested as an explanation of the diminution in volume that the phlogiston when it escapes into air causes the volume of the air to diminish, and so phlogiston has a minus volume as well as a minus weight; this was Scheele's explanation of the diminution in volume. When this point in the discussion is reached, it is convenient to explain that the chemical world of 1774 was in possession of these facts, and that a good many chemists were thoroughly dissatisfied with the theory of combustion given by the phlogistians. If another theory is asked for the true explanation of combustion is generally given, and then Lavoisier's experiment on mercury and its calx can be described.

Lavoisier was always interested in combustion and had shown in 1772 that phosphorus gains in weight on combustion, but it was not until Priestley communicated to him his discovery of oxygen that he was able to propound the more satisfactory theory of the present day. Lavoisier's own account is as follows:

Taking a vessel or long-necked tube with a bulb or globe at its extremity containing about 36 cubic inches, I bent it so as to place it in the furnace whilst the extreme end of the neck was under a glass cover which was in a basin of mercury. Into this vessel I poured four ounces of very pure mercury, and then, by means of a syphon, I raised the mercury to about three-quarters the height of the glass cover, and marked the level by gumming on a strip of paper.

I then lighted the fire in the furnace and kept it up for twelve days incessantly, the mercury being just sufficiently heated to boil. At the expiration of the second day small red particles formed upon the surface of the mercury, and increased in size and number for the next four or five days, when they became stationary. At the end of twelve days, seeing that the calcination went no further, I let out the fire and set the vessels to cool.

Lavoisier found that the air in the vessel had diminished in volume by about one-sixth, or from 50 cubic inches to 42 or 43 cubic inches: he collected 45 grains of the red particles, which appeared on the surface of the mercury, and heated it strongly: it darkened in colour, and he eventually collected from it seven or eight cubic inches of gas, which was exactly the volume of air which the mercury took up during calcination. This gas he found to be an excellent supporter of combustion, while the air left behind in his heating apparatus was not a supporter of combustion. The part of the air taken up by the mercury was called oxygen by Lavoisier.

Lavoisier then clearly showed that during combustion so far from anything escaping from the burning body, something from the air combines with it: this causes the increase in weight and the diminution in volume of the air, and at the same time it became clear why no combustion could take place in the absence of air.

I feel sure that this historical method of treating the subject of combustion will be followed by an increased interest on the part of the boys, while

if care is taken to make the whole discussion take as far as possible the form of question and answer, there is every probability of greater intellectual development than can possibly accrue from any bare exposition of the present-day theory of combustion.

THE USE OF SIMPLE MODELS IN THE TEACHING OF ELEMENTARY GEOMETRY.¹

By A. L. FLETCHER, B.A.

THE value of models for teaching purposes is now quite generally recognised, and in no branch of school work is there more need for presenting the subject-matter in as clear and convincing a manner as possible than in elementary geometry.

When "Euclid" held universal sway the study of geometry was usually formal and abstract. The better pupils in a class were no doubt able to get an intelligent grasp of the fundamental principles and their application, but to many a boy the subject must have been little more than laboured memorising or juggling with lines and letters.

Nowadays it is usual to illustrate by experiment or calculation certain fundamental truths, and to postpone the formal proofs of propositions when these proofs are likely to cause confusion rather than clearness in the mind of the beginner.

In this experimental stage the value of models is very great, and their judicious use will do much to foster a real interest in what is apt to be regarded as a dull subject. The models described below are all simple and can be made at the cost of a few pence.

A set of straight wooden rods have been found very generally useful, and can be applied to the illustration of many geometrical facts and constructions. Cut a dozen rods about one centimetre broad, three millimetres thick, and varying in length from ten to fifty centimetres. Bore a number of holes in each. If a soft wood, such as butter-nut, is used, the boring can be done with an ordinary cork-borer, which makes clean and regular holes. It will be found convenient to have holes at the ends and middle of each rod, and to have at least three pairs of rods of equal length. Additional holes should be made in a number of the rods, so that a wide range of figures can be built up. A supply of small bolts and nuts (costing threepence a dozen) are used for fixing the rods in the desired positions.

Practically all theorems where proofs by rotation are applicable can be illustrated by such rods, and they are specially useful in dealing with the theorems on parallelism. With three rods arranged as in Fig. 1, alternate, interior, exterior angles, &c., may be presented to the pupils in numerous positions and various sizes.

Adjust rods CD and EF until an angle (say 60°) of a set-square just fits angle x . Slide the set-square along EF until it reaches the rod AB, and

adjust AB so that angle y fits the angle of the set-square. The pupils will find, on testing, that AB is now parallel to CD, and incidentally they will learn a method of drawing parallel lines by means of a set-square and straight edge. Similarly, pairs of alternate angles and pairs of interior angles on the same side of the transversal may be dealt with.

In considering congruence of triangles and the construction of triangles from data, it will suffice to suggest only two or three uses of the rods.

To construct a triangle with its sides equal to three given straight lines.—Take three rods to represent the given sides, choose one as base, and join the other two rods loosely to the ends of the base. By rotating these sides, the points where their free extremities meet are at once seen, and a few judicious questions will suggest the construction required. By choosing rods of suitable lengths, impossible cases may be clearly illustrated, and the necessary condition attached to the three given lines discovered. In the impossible cases the pupils see that the extremities of the rotating rods cannot meet, and the model makes the reason for this quite apparent, no matter which of the given lines is chosen as base.

To show that a triangle is fixed when the sides are of given length, but that a quadrilateral is not fixed when the sides only are known.—Take

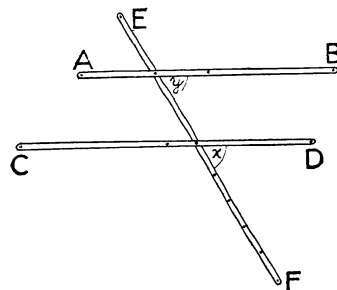


FIG. 1.

three rods and form a triangle, inserting the bolts quite loosely. Let a pupil handle this model, and he finds that he cannot alter its shape. Now make up a quadrilateral with four loosely-jointed rods. Allow a pupil to take hold of this model, and he at once discovers that the quadrilateral is not fixed in size or shape. It will not be difficult to find a method for making the quadrilateral rigid. (Either fix an angle by tightening one of the bolts, or insert a diagonal.) Polygons may be similarly investigated. Sometimes a pupil states that a polygon is regular if all its sides are equal. Make up a polygon with any number (say six) of equal sides, and the pupils find that they can make such a figure take any number of different shapes. The fault in the pupil's definition is discovered, and further consideration of the model will lead to the necessary amendment.

Given two sides of a triangle and the angle opposite one of them, to show that ambiguity may arise in constructing the triangle.—Take two rods AB, AC to represent the given sides, and join them loosely at A. At B make angle ABX equal to the given angle, using a long rod BX and fixing the angle at B with a tightly screwed bolt. In the first instance, let AC be less than

¹ Messrs. G. Cussons, Ltd., The 'Mechanical Works, Broughton, Manchester, are prepared to supply any of these models.

AB. Rotate AC about the point A, and the two possible cases will be clearly shown. Now let AC be greater than AB, and again rotate AC. The second triangle formed in this case does not satisfy the conditions, since the angle ABX is not an angle of the triangle. When AC is equal to the perpendicular distance from A to BX, the rotating line AC just touches BX, and hence only one triangle is formed.

An interesting and instructive application of the rods is to show how a parallelogram with given sides may vary in area. Build up a parallelogram with given sides. Let the joints be loose and the figure may be made to assume any area from nothing to that given by the product of a pair of adjacent sides. The pupils cannot fail to see that the area depends upon the height of the parallelogram, and that the maximum area is attained when the figure becomes a rectangle.

The following example shows how the rods may be used to illustrate questions on loci.

To find the centre of a circle whose circumference will pass through three given points. When is this impossible?—Arrange four rods as in Fig. 2, with bolts at X, Y, and B. Fix XQ at right angles to AB, and YP at right angles to BC, but leave the joint B loose. By moving AB and BC so as to change the size of angle ABC, the variation in the position of O, the required centre, is shown. As angle ABC becomes more obtuse the centre O recedes from the points A, B, C, and finally when A, B, C are in a straight line XQ and YP become parallel, and the centre O goes off to infinity. By making angle ABC more and more acute, the centre first approaches the rods AB, BC, then recedes, and finally when angle ABC becomes zero, *i.e.*, when A, B, C are again in a straight line, XQ and YP are again parallel and the centre O is at an infinite distance from AB and BC.

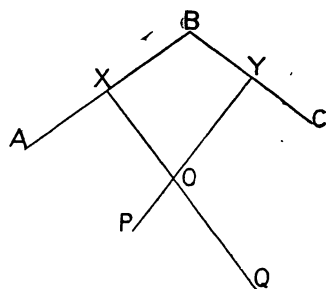


FIG. 2.

almost vertical plane, and so made visible to a large class.

Bring angles A, B, C together against a straight edge—the ledge of the supporting board just mentioned is suitable—and the fact that the three angles of a triangle together make up

two right angles is at once demonstrated. If the angles be brought together by transferring Sections I. and II. into the positions shown by the thin lines in Fig. 3, the whole of Euclid i. 32 can be made quite realistic.

Again starting with triangle ABC, rotate Section III. about E until EC coincides with EA, and Section II. about D until DB coincides with DA. The triangle is now converted into a rectangle,

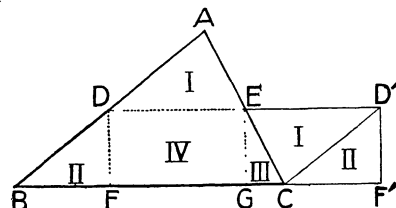


FIG. 3.

which must, of course, have the same area as the triangle. By measurement, or otherwise, the base of this rectangle is found to equal half the base of the triangle, while both figures evidently have the same altitude.

Take the triangle ABC and transpose Section I. to the position shown in the figure. The triangle is converted into a parallelogram DD'CB having the same base and half the altitude of ABC; while by transposing Section II. also, the equivalent rectangle DD'F'F is formed.

The circle does not so readily lend itself to treatment by simple models, but that shown in Fig. 4 serves to illustrate a number of important theorems and problems on the circle; *e.g.*, Euclid iii. 20, 21, 22, 27, 31, 32, 33, 34, and iv. 2.

On a board about twelve inches square and half an inch thick draw a large distinct circle. At the centre make a small hole, and round the circumference bore numerous holes just large enough to receive stout pins. Provide several loops of thin elastic and a supply of pins. Insert pins at A, B, C (Fig. 4), and over them place one of the elastic loops so as to form the triangle ABC. (If the holes be made just within the circumference, the thickness of the elastic is thus allowed for, and a more accurate figure is obtained.) Move the pin A to various positions on the arc BAC, and the fact that the angle in a given segment of a circle is constant is demonstrated. A convenient way of showing this to a class is to cut or fold a piece of paper to fit angle BAC, and apply this after every change in the position of A.

By inserting a pin at D, the centre, and passing the chord BC over D, an angle BDC at the centre is formed, and with protractor or folded paper this angle may be shown to be always double the angle at the circumference, which stands on the same arc. All the possible cases may be illustrated by changing the positions of the pins A, B, C.

To illustrate Euclid iii. 22 place a pin at E and pass the elastic loop over A, B, E, C, thus forming a cyclic quadrilateral. Measure the angles of several such figures.

By drawing on the board a tangent XY,

Euclid iii. 32 may also be illustrated. BC should be made to vary in position and length, and all the angles involved in the proof of the proposition should be tested for several positions of A and E. Two loops ABC and EBC will form the complete figure.

Fig. 5 shows a model for proving experimentally that the area of a circle is equal to πr^2 , i.e. $= \frac{1}{2}$ circumference \times radius. Cardboard might be used for making it, but a wooden model amply repays the time spent on its production, as it is durable and much more convenient to handle. Twenty sectors will give sufficient accuracy, and may be arranged to form a figure which is almost a parallelogram; but if one of these sectors be cut lengthwise into two equal parts, the sectors when grouped as in Fig. 5 (b) will form a rectangle (approx.), the length of which is equal to half the circumference of the circle, while the height is the radius of the circle. Binding sectors 1 to 10 together by a narrow tape glued to their curved bases helps to show clearly that the length of

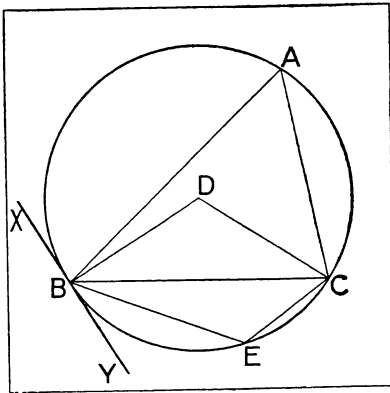


FIG. 4.

the rectangle is equal to the semicircumference of the circle. A thin board with a circular and a rectangular aperture to receive the sectors facilitates the manipulation of this model.

In dealing with areas as treated in the subject-matter of Euclid, Propositions 1 to 8, the model represented in Fig. 6 is very serviceable. It consists of a board about ten inches square cut into nine pieces as shown. By making $AH=HB$, the scope of the model is considerably increased. Provide an extra square equal to KF . To illustrate Euclid ii. 7, use the part $A EFG$ of the model. Let $AE=a$, and $HE=b$. The square AF represents a^2 . Add b^2 to this by placing the extra square referred to above with one of its edges coinciding with LG . Now take away ab —i.e., Fig. HF —and take away ab again—i.e., Fig. LN with the extra square attached. The square AK is left, and since $AH=(a-b)$, this square is equal to $(a-b)^2$, i.e.,

$$a^2 + b^2 - ab - ab = (a - b)^2.$$

To show that $x^2 - y^2 = (x + y)(x - y)$, use the same part of the model. Let $AE=x$, and $AH=y$. From AF —i.e., x^2 —remove AK —i.e., y^2 —and

move LN until KN coincides with NF . The rectangle so formed has its adjacent sides equal to $x+y$ and $x-y$. The whole model is a geometrical illustration of the identity

$$(a + b + c)^2 = a^2 + b^2 + c^2 + 2ab + 2bc + 2ca;$$

section AO illustrates $p(a + b + c) = pa + pb + pc$, and so on. The handling of the various squares

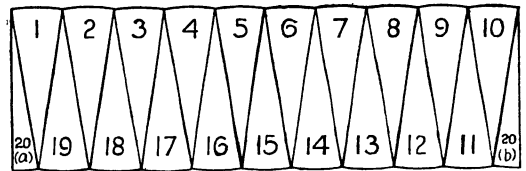
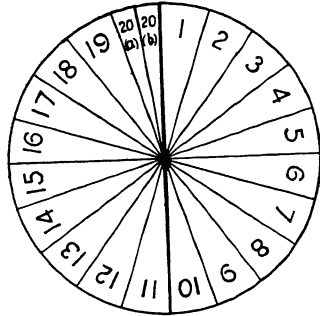


FIG. 5.

and rectangles and their actual addition or removal give a reality to these demonstrations that cannot be attained by mere drawings. If the sections of the model be differently coloured, they are more easily distinguished, and can be readily

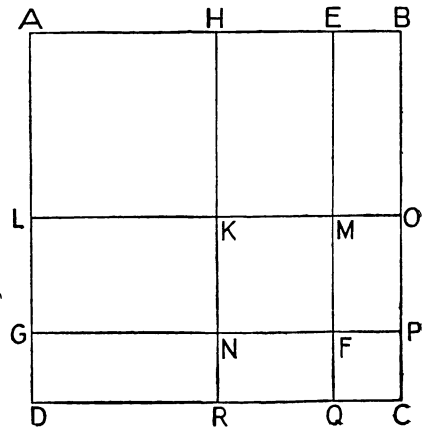


FIG. 6.

referred to; or the whole surface might be prepared for lettering in chalk.

In the study of volumes, models are indispensable, and in addition to a supply of small cubes and the usual geometrical solids, a cube with its faces divided as in section $A EFG$, Fig. 6, and cut up in such a way as to form two cubes and six square prisms, will prove instructive.

Suppose $AH=a$, and $HE=b$, then the whole model illustrates the fact that

$$(a+b)^3 = a^3 + 3a^2b + 3ab^2 + b^3.$$

If further development along these lines be deemed advisable, a cube with its faces divided as in Fig. 6 may be cut up into 27 parts, which will illustrate the expansion of $(a+b+c)^3$. A wide range of identities can be dealt with by using parts of this model.

TEACHERS' VIEWS OF EXAMINERS' REPORTS ON LOCAL EXAMINATIONS.

II.—MATHEMATICS.¹

By R. WYKE BAYLISS, M.A.

Whitgift Grammar School, Croydon.

Specific Criticisms.

ARITHMETIC.—Perhaps the most significant circumstance connected with the Local examinations in arithmetic is the instruction which for the last five or six years has appeared at the head of each Oxford or Cambridge paper. The Oxford headline reads:

"All necessary work must be shown. No credit will be given for answers without sufficient work."

The Cambridge headline is even more emphatic:

"The working of the answers is to be shown up. Answers without working will not count."

Apart from its colloquialism, the very redundancy of this warning indicates a serious attempt on the part of the examiners to remedy a deplorable state of affairs. Such a headline is a most damaging criticism upon the mathematical teaching of some schools. The examiners are to be congratulated upon taking such a firm stand against slovenly work.

Coming to the questions themselves, we cannot help noting a partiality for G.C.M. and L.C.M. Can anyone seriously contend that the capacity for finding a common measure indicates a cultivated mind? Or is the theory of common multiples of any importance mathematically, except as a convenience for the addition of *carefully selected* fractions? Many teachers consider undue study of this subject, in arithmetic as well as in algebra, to be a wearisome waste of time. In that sense the examination encourages "cramming," or filling with non-educational knowledge. *Factors*, of course, are not to be despised; but why test a boy's training by asking him to find factors of 382,716,049 and 876,543,209, as Cambridge did in 1901? It is noteworthy that in 1889 Oxford asked for the L.C.M. of 24, 32, 36, 54. That is quite sufficient to test an elementary knowledge of factors. The next year they asked for the G.C.M. of 10,166 and 46,189. Since then Oxford appears to have abandoned this subject. But Cambridge, beginning in 1900 with the factors of 2,652, and 4,147 and 5,742, gradually imposed tests more and more severe. This year the very first question in the paper was: "Find the L.C.M. of 10,659, 12,903 and 14,421." The principle "Be efficient"

hardly seems to connote the power of working such questions with infallible accuracy under the time-stress of an examination. These tests encourage the last-mentioned type of cramming. A reversion to Oxford's earlier manner would be better; although it should be quite sufficient to set some easy fractions to be simplified.

The second question in the Cambridge senior paper of last July contained two simplifications of fractions. Although easy enough for boys with a mathematical turn of mind, such work presents considerable difficulty to those whose bent lies towards history or languages. One such simplification in a paper ought to be sufficient. The fact that the students could show their knowledge of fractions only by attempting these complexities means that an undue amount of time has to be spent by a considerable number of boys in acquiring facility in reducing such expressions as the following, which were set in 1900 and 1910 respectively:

$$2 - \frac{4}{5 - \frac{9}{7 - \frac{16}{17}}}, \quad \left(3\frac{1}{2} \times 7\frac{1}{2}\right) - \left(23\frac{7}{8} \div 4\frac{1}{2}\right) \\ \left(50\frac{1}{8} \div 5\frac{1}{4}\right) - \left(9\frac{3}{8} \times \frac{3}{7}\right).$$

Since nearly all teachers have banished such matter from the early part of their curriculum, the result is that this facility has to be obtained by classical scholars at a time when they might be doing better work which would open their eyes to some of the real mysteries and beauties of mathematics. This type of question leads to "cramming" in the sense of special preparation for the purpose of examination only.

The third and fourth questions in the paper which we have been considering both dealt with tons, hundredweights, quarters, and pounds. Such work the modern mathematician abhors only one degree less than the reduction of acres, roods, poles, and yards. It may be necessary, pending the adoption of the metric system, to set *one* such question in a paper; but it is hardly fair to set *two* of the same kind. Is not memorising of tables unanimously condemned by the advocates of the "reason-and-experiment" school, and by others also, as sheer "cramming"? Yet nearly every year since 1903 Cambridge has set questions upon the avoirdupois measures. It is noticeable, however, that, during the five years 1898-1902, Cambridge avoided this measure; whilst Oxford has almost invariably set questions upon both avoirdupois and land measures. A reversion to the earlier manner of Cambridge would be better in this case, although it might be still better to follow the example of the Civil Service examiners, who always append a list of the constants to be used.

The remaining six questions in the above-mentioned paper were on the whole eminently fair and reasonable. The majority of these, however, were evidently intended for students seeking distinction. It thus appears that the boy who was not intended for a mathematical career had little chance of showing the results of four or five years' careful training in arithmetic. All the time and energy he had spent upon acquiring knowledge of the metric system, the monetary systems of the Con-

¹ The former article appeared in THE SCHOOL WORLD, January, 1912.

continent and of America, direct and inverse proportion, simple fractions and decimals, profit and loss, the relations between length, area, and volume (not to mention his powers of addition, subtraction, multiplication, and division, in dealing with ordinary numbers or with his own currency) were, from an examination point of view, absolutely wasted. The boy who had never even heard of kilograms or millimetres might have scored brilliantly; whilst another, who would pass for a good arithmetician on the Continent or in the *New World*, might have failed ignominiously! Does such an examination test "efficiency"?

In justice to the examiners, however, it should be added that they seem to have been actuated by a sincere desire to discourage "cramming" (in at least one of its meanings). The questions set could be answered by those candidates only who had been thoroughly trained to answer such questions. Mere mechanical knowledge of the fundamental principles, without the insight necessary to penetrate beneath the surface, would be quite insufficient. But the result is that boys with any true mathematical ability would answer the whole paper in half the allotted time; whilst the "average" classical student would fail unless he had devoted to such questions an amount of application altogether out of proportion to their educational value.

ALGEBRA.—Turning to the corresponding algebra paper, we note that there were no questions set exclusively upon the following subjects: evaluation of formulæ, surds (as such), and indices. Of course, it is difficult to cover the whole ground within the limits of a single paper; but it seems a pity to miss the three principles most needed in the application of algebra to elementary physics.

The leading question, simplification of fractions, was quite sufficient to frighten the "average" boy referred to above, and make him suspect "tricks" in the few easy tests which an ingenious youth might manage to pick out from the whole mass covering the four printed pages which were placed before him. The equations, especially the simultaneous quadratics, were far too "academic." The only question upon arithmetic progression was strangely placed among those intended for students seeking distinction; and that question was too ridiculously easy for such boys! The problems were far too hard and "unpractical" according to modern ideas; and the graphs set seemed to lead "nowhere."

Nevertheless, if we glance over the papers of past years there seems at first sight to have been a gradual but amazing deterioration in the standard. The fractions set this year were child's play compared with some of those set in 1898 and 1899. There were far more difficult factors to do in those years; and equations were then set which would make the hair of many a modern candidate stand on end! Yet, paradoxically enough, it was probably easier then to secure a "pass" than to do so now. For, whereas in former years nearly every question consisted of two or more parts,

one being generally easy, however difficult another part might be: now, on the contrary, most of the questions (in the part intended for non-mathematical boys) consist solely of one or two moderately difficult tests. Hence the boy who, though he has not begun to specialise in higher algebra, yet possesses some mathematical talent, might now rush through the "pass" part of the paper mentioned, and find there nothing worthy of his powers until he reached those questions intended for candidates seeking distinction. Then he would be faced with a rude shock, having probably never even seen such questions in his life.

On the other hand, the "average" classical student, who in past years would have scored quite decently, could hardly find a single question within his grasp. In proof of this statement it is perhaps sufficient to refer to the multitude of failures which were reported recently from all over the country. But the present writer knows personally a candidate who in 1910 passed in all the subjects required for his future career except algebra. After a year's "grind" the youth had reached the limit of his powers in that subject. He had progressed sufficiently well to be practically certain of making over 50 per cent. on the "pass" part of the algebra papers set in the Cambridge Locals during the preceding ten years. Yet the result last year was the same as before; because (all the moderately easy tests having been cut out) he could hardly answer a single question in the algebra paper correctly. Just as "hard cases make bad law," so the ruin of the career of an intelligent, but non-mathematical, youth by setting him questions which no amount of diligent application could enable him to answer, suggests that the examiners are on the wrong track in attempting to discourage "cramming" by merely *equalising* the questions.

The examiners ought to recognise the merit of conscientious labour on the part of a classical boy to make himself acquainted with the main principles of mathematics. In other words the "pass" should be granted either for "knowledge" or for "power"; both of these being required for distinction.

We might illustrate the matter by comparing the older form of examination to a race over a hundred hurdles ranging from two feet to six feet in height. Those who cleared thirty of the hurdles "passed"; those who clearly sixty obtained "distinction." By the new arrangement all the hurdles are made four feet high. The other conditions remaining as before, it is clear that he who can jump to a height of three feet six inches might have easily passed the former test, but would utterly fail in the latter; whilst he who now obtains "distinction" might have failed to do so under the former test. Such conditions hardly seem likely to promote general "efficiency," however much they prevent a particular type of "cramming."

In the Oxford Locals, the algebra papers for seniors generally appear to be free from most of

the above-mentioned defects. The "modern" teacher will no doubt find the questions rather too "academic"; but otherwise they really are calculated to test either knowledge or power, or both combined. But, strangely enough, the Oxford algebra papers for juniors seem less suitable than those of Cambridge. Both the Universities appear almost untouched by the latest movements in the teaching of algebra; but Oxford especially lags behind in satisfying the demands of the new school.

GEOMETRY.—Very little need be said concerning the geometry papers. The two Universities have agreed upon a definite syllabus, and the questions set are perfectly straightforward. This, no doubt, is due to the persistent efforts of the Mathematical Association. There is thus no attempt made to discourage "cramming" in geometry. The consequence is that this is now the one subject in which teachers are not tempted to commit that crime. The only adverse criticism to be offered, in the portion set for a "pass" at least, is that the standard is rather too uniform and too low. It is somewhat as if, taking the above illustration, the hurdles ranged only from three feet to four feet, instead of from two feet to six feet. Failures in this subject may be ascribed to the general disorganisation which was inevitable during the process of transition from the rigid "one-at-a-time" methods of Euclid to the flexible "group-by-group" methods of the school of the future.

This is neither the place nor the time to deal with the more advanced papers. Enough has probably been said to show that, whilst the severe strictures passed by the examiners upon the work of the candidates seem to be perfectly justified, yet the fault does not lie wholly with the teachers. Parents, masters, inspectors, and examiners should each take their share of blame. All alike seem to be tainted with the modern heresy, which, whilst regarding "reason" as the greatest of virtues, denounces "memory" as the worst of crimes. As if, forsooth, reason could exist without memory! The very simplest syllogism, "A is B, and B is C; therefore A is C," requires memory, as well as observation and judgment. The latter qualities are absolutely sterile without memory. Unless the two premises be remembered perfectly by the time the conclusion is reached, the latter cannot be inferred correctly. How much more is this the case when a whole chain of logical reasoning is required!

The case against the Local examinations may be summarised as follows:

(1) Too many questions are set upon subjects which are chiefly useful in dealing with "selected examples."

(2) Insufficient attention is given to main principles.

(3) Memorising of semi-obsolete measures is encouraged.

(4) There are not enough easy problems.

(5) Knowledge important for its application to physics is passed over.

(6) Many of the examples are far too "academic."

(7) The difficulties are insufficiently graded.

(8) The needs of the industrious but non-mathematical student are neglected.

(9) No encouragement is given to those who, having acquired some facility in the main principles, desire to have an exhilarating dip into the minor mysteries of the higher mathematics before they leave school for the wider sphere of life.

It is hoped that the reader will not construe this article into an attack upon the examiners who set the papers, or even upon the syndics and delegates who are responsible for the syllabus. The criticism is intended to show that, whilst teachers and examiners alike are joining in the fashionable cry, "Thou shalt not cram," their actual ideals are extremely diverse.

The examination papers are excellent from the point of view of the examiners. Their object, no doubt, is to prevent candidates who have no natural mathematical powers from taking the papers in mathematical subjects. Hence the examination covers a fairly wide area, penetrates to a considerable depth, and is sufficiently weighty to crush a "weaking," however alert and industrious he may be. The teachers, on the other hand, believe that some elementary knowledge of mathematics is not only a valuable training for the mind, but also a necessary equipment, in this age of science, for nearly every rank in life, even for those who have no mathematical ability. As we teach language to those who have no chance of becoming linguists, so we should teach mathematics to those who can never become mathematicians. To suit such students, who form the majority, the teaching, like a wise tillage, should not cover too large an area, nor penetrate too deep, nor be too heavy; but it should be well distributed.

The examination for a "pass" should cover the same ground as the teaching. The years of care which are now spent in trying to develop the dormant mathematical faculties of the "average" boy ought to show some definite result in the examination, whenever, at least, the boy is industrious and possesses a retentive memory. Perhaps, by the way, the greatest evil which the outcry against "cramming" has done is that it has almost destroyed the *memory* of the modern schoolboy. That, however, is another story.

The evil referred to in this article is that of conflicting ideals. The mathematical masters now spend four or five years in training a boy in the way in which *they* think he ought to go. He is then faced by the necessity of passing the Local examinations for the purpose of a professional career. The examiners set him questions which *they* think he ought to answer. The result is that for two, or perhaps three, terms before the examination, the masters are compelled to drop their curriculum (including the elements of trigonometry, co-ordinate geometry, and the calculus) in order to give the boy special preparation for a special and rather academic type of question.

If this be not the "accursed thing," what then is "cramming"?

THE SCHOOL MAGAZINE AND ITS DEVELOPMENT.¹

By H. COURT, B.Sc.

Assistant-master, Monnow Road L.C.C. Central School.

IT is hardly necessary to dwell at length on the many and varied advantages of a school magazine; a brief statement of the three chief advantages will suffice.

It promotes the corporate life of the school, making each boy and girl a more vital and integral part of the school to which he or she belongs.

It affords one of the easiest, and at the same time one of the most effective, media between the parent and the teacher. Speaking generally, the parent knows too little of the teacher, and the teacher too little of the parent. Open days, school entertainments, prize distributions, and the like do something in this respect, but these are only occasional functions, and many parents do not attend them. The school magazine, on the other hand, is a regular and frequent channel of communication. My own experience is, that when parents visit the school they generally make reference to the school magazine and to matters which they have read in it. Parents, we find, read it, as much as the scholars.

It creates a desire for reading good literature, stimulates the scholars to literary effort, and furnishes a training in the writing of good English. It is desirable to set a sufficiently high standard in the contents of the magazine that the scholars will feel it to be a distinction and a proof of literary ability to have their contributions accepted. Such a feeling assists in the spreading of the contributions over a wider area, and encourages effort.

The school magazine may take four different forms. First, there is the "graphed" form, generally a four-paged booklet containing the most important and interesting items of school news. One recommendation for this type of magazine is its small cost of production. Graphed magazines are produced in several schools under the London County Council, and they must certainly be regarded as most useful instruments. The magazines also are given away, which is another advantage. Secondly, there is the form of magazine which consists of a public journal with a local cover. The magazine in my own school started in this way many years ago. Thirdly, there is the more expensive type of magazine produced generally in secondary schools, and published once a quarter at a higher price than is possible in primary schools. Then there is the form which I mention last merely because on its production I shall necessarily have most to say, in the hope that the disclosing of the method of procedure may be useful to other teachers.

We started our paper with its present character three years ago, and have published it monthly (August excepted) up to the present time at a uniform charge of one penny per copy. The cir-

ulation of the first number was 1,000; the circulation of the thirty-third number, the present one, is 1,000, the intervening period showing little fluctuation. Our balance at the end of the first year was five guineas. This we determined to hold in hand if possible, and make the magazine merely self-supporting the second year, so as to give as much value for money as possible. We came out on the right side fortunately on the second year's working, clearing 4½*d.* On the present year's account we have a balance of 10*s.*, making a total balance for the three years of £5 15*s.* 4½*d.*

This year the cost of setting up and distributing the magazine has averaged about five guineas per month, or £57 15*s.* for the eleven numbers. Our advertisements have brought us in £26, and our sales about £33. We always send out a large number of gratuitous copies to advertisers and others. Thus our monthly bill of five guineas would be met by £2 7*s.* from advertisements and £3 from sales, which means that our magazine can pay its way on a basis of 700 or 800 copies per month.

As to what our advertisement charges are: A whole page brings us in from £2 5*s.* to £3 per annum, according to position; a half-page, £1 5*s.*; a quarter-page, 16*s.* 6*d.*; and an eighth of a page, 8*s.* 9*d.* The small advertisements pay us best. The pictures in the magazine are printed from blocks, either hired from a publishing firm or borrowed from a friendly newspaper. The hiring costs us 4*s.* for each block.

Our aim all through has been to provide a magazine which should be readable, interesting, and at the same time instructive to our boys and girls; which should contain all important school matters without savouring too much of school; and should keep the children well informed on subjects of everyday interest outside school life. We have kept in view the requirements of the readers as well as our duty to our contributors, knowing that the former must always greatly outnumber the latter. We endeavour to make the contents of the magazine as varied as possible each month, securing that no two consecutive numbers shall be similar in the character of the reading matter. Of course, we have several stock features, a few of which, as the head teachers' letters, are constant. Pupils and teachers write the whole magazine themselves. All the title-blocks, too, are designed by a member of the staff. To produce a successful school paper the hearty co-operation of the whole staff is essential. One man or woman cannot do it alone. Head teachers, assistant teachers, boys and girls must all do their part.

To produce eleven pages of matter each month, it may be thought, is a task of some difficulty. My experience, fortunately, has been quite the reverse, and I do not remember a single month when I have not had a surplus of suitable copy and been called upon to make a choice, and to hold some in reserve for a subsequent issue. Of course, the editor and sub-editor always have notebooks in their pockets, and when they find

¹ From a paper read before the L.C.C. Conference of Teachers, January, 1912.

suitable news, like Captain Cuttle, they "make a note of it."

Connected with the editing of the paper is the adjustment of the contents to suit boys and girls. At Monnow Road School we have always set our faces against a "divided" magazine, wherein certain portions should be definitely allocated to the boys' department and others to the girls' department. We believe in the "joint" concern, and insert the best and most urgent contributions, whichever department they may primarily concern and from whichever department they may emanate. There is little likelihood, under careful management, of the magazine being one-sided, and space-proportion will present little difficulty. Our object, of course, in not dividing the pages up into watertight compartments was to suit our readers, so that all could read with interest nearly the whole, if not quite the whole, of the paper. This common ground can also be assisted by ensuring that a part of the matter each month shall be general, and not suitable to boys or girls only.

PERSONAL PARAGRAPHS.

THE Rev. George R. Dupuis, who died on January 30th, was born at Eton and belonged to a well-known Eton family. His father was Fellow and Vice-Provost, as was his mother's father; his uncle, the Rev. Harry Dupuis, was an Eton master, and he himself was an Oppidan before becoming a Colleger in 1884. He was a great cricketer, played for Eton in 1851 and the two succeeding years, and as a master gave a great deal of time to coaching the boys. Year after year he was to be seen at the Eton and Harrow match, the last he saw being that in 1910, when the school for which he had done so much won by the narrow margin of nine runs. On leaving Eton he became, after a short stay in Dorset, rector of Sessay, where, by his kindness, directness, and simple outdoor life, he won and retained the affectionate regard of his Yorkshire parishioners.

* * *

MR. A. T. BARTON, Senior Fellow, Tutor, and Junior Dean of Pembroke College, Oxford, died suddenly from heart failure at the end of January. He was a native of Birmingham, and matriculated from there in 1859; he obtained a first in the Final Classical School in 1863 with the present Provost of Oriel and the late Master of Balliol. He is described as "a man of ripe and fruity scholarship whose Latin verse . . . represents the ambitions of a strongly literary and perhaps less scientific school of classical learning than the present; a lecturer whose admiration for the Agamemnon led him to recite its beauties rather than expound its difficulties. . . ."

* * *

THE Rev. Dr. E. A. Abbott, who has just been elected an honorary Fellow of St. John's College, Cambridge, was in 1861 Senior Classic, Seventh Optime, and Senior Chancellor's Medallist. He is best known to the present generation of school-

masters as the man who made the City of London School; he was its headmaster from 1865 to 1890, after experience as a master at King Edward's, Birmingham, and Clifton College.

* * *

THE Manchester Association of the N.U.T. has elected Mr. J. L. Paton, high master of Manchester Grammar School, as its president for the coming year. In his address from the chair he said: "We are all teachers. We are working for the same end, on the same material, in the hope of the same harvest. As such we cannot know too much of each other. The great weakness of English education in the past is that we have known too little." However deep the dividing lines have been, the election of Mr. Paton shows that much is being done to remove them. He is a man of remarkable energy, getting through an amount of work that would astonish anyone who followed him through one of his ordinary working days—whether it were in Manchester or London, or both, or under canvas.

* * *

MISS DOBELL, the headmistress of the Pontypool Girls' County School, died on January 16th. She took a keen interest in the Moral Instruction Inquiry and in the First Congress that followed it. She was one of the teachers in secondary schools who took advantage of the arrangements made by Mr. Alfred Mosely for teachers to visit the United States. During that journey she made a very favourable impression on the American teachers by her clear grasp of detail and her neat, concise, and crisp expression of English ideals.

* * *

THE following resolution of the Council of the British and Foreign School Society will call to mind one of the pioneers of the educational theories of Froebel in this country, who did much to popularise the kindergarten system for young children:—"It was resolved to put on record an expression of deep regret at the death of Fräulein Eleonore Heerwart, which took place at Eisenach on December 19th. It was largely due to her influence and advocacy, while head of the kindergarten department at Stockwell College from 1874 to 1883, that Froebel's educational theories won acceptance in England, and the kindergarten became an integral part of English education."

* * *

THE headmaster-elect of the new school at Altrincham is Mr. L. S. Laver; he was a Nottingham boy who went up to St. John's, Cambridge, where he took a First in the Classical Tripos. He has been a master at Calday Grange, West Kirby, Wyggeston, and King Edward's School, Stourbridge.

* * *

MR. KAHN is to leave the service of the London County Council for that of the Board of Education. All his experience has been in London; after being at the Central Foundation School as a master from 1892 to 1899, he was one of the first London County Council travelling scholars; on

his return he became head of the commercial department of University College School, from which he went to the Holloway County School in 1907. As an assistant master, he was a keen member of the Assistant Masters' Association, for which he was an energetic worker.

* * *

MISS SUSAN LAWRENCE, who has resigned her seat on the Education Committee of the London County Council, has been one of its hardest workers. She is a woman who has the reputation of being hard, but those who have taken their troubles to her have found in her a warm-hearted friend always willing and able to help them.

* * *

ANOTHER change in the constitution of this committee is the appointment of Miss Beeton in the place of the Hon. Violet Douglas-Pennant. Miss Beeton is an M.A. of Trinity College, Dublin, and took honours in the Mathematical Tripos at Cambridge.

* * *

WINCHESTER and Wykehamists have lost a friend in Miss Mary Bramston. It must be nearly forty years since she went to Winchester and managed her brother's house for him; his old boys prize the memory of her unfailing kindness, the laugh which accompanied it, and her keen sense of humour.

* * *

MISS EMILY DAVIES has received an address and a cheque for seven hundred guineas, which she intends to offer to the Council of Girton College towards the extension of the buildings. The mistress of Girton read the address, congratulating Miss Davies on her work during fifty years on behalf of women. Miss Davies, in replying, gave some particulars of her early activities. Readers of THE SCHOOL WORLD will remember that a portrait appeared in the issue for April, 1902, together with some account of her work.

* * *

MISS BISHOP, the well-known principal of the Hastings and St. Leonards Ladies' College, will retire at the end of the current term after having held that office for twenty-five years. She is to be succeeded by Miss C. E. Battye, who took second class honours in natural science at Oxford, and has been a mistress at Clapham High School.

* * *

MISS FRANCES CREATON, a teacher who took part in the disturbance in connection with woman's suffrage in November last, had to appear at Bow Street; she was consequently absent from school without leave for nearly a week. The Hornsey Education Committee suspended her without payment of salary until the end of the year, and withheld her annual increment of five pounds. After resuming work, she asked through her solicitor for her salary for the period during which she was absent. As she had apparently agreed to the terms of suspension, the Committee decided to give her a month's notice to terminate her engagement.

DR. H. T. BOVEY, formerly rector of the Imperial College of Science and Technology, who died recently, went from a private school to Queen's College, Cambridge, and was twelfth Wrangler in 1873. In 1887 he became professor of civil engineering and applied mechanics at McGill University, Montreal; in 1909 he was appointed first rector of the reorganised Imperial College of Science and Technology in London. In 1897 he was vice-president of the Mechanical Science Section of the British Association.

ONLOOKER.

HISTORY AND CURRENT EVENTS.

CHINA has become a Republic: What does that mean? Is the phrase a sufficient description of the revolution that has taken place? Etymology does not help us; for the word is Latin, *res-publica*, and means simply the State, under whatever form. Our forefathers of the sixteenth and seventeenth centuries knew the word, and, so far as their knowledge of Roman and Græek history went, they knew the thing. They translated it into Commonwealth, a word applied to England equally under Elizabeth or the Stuarts as under the Long Parliament or Oliver Cromwell. Portugal is a "Republic," so is France, so are the United States of America. So was Poland under its kings. So were the United Netherlands, whether they were ruled by Orange Stadholders or by aristocratic burghers. So are the States of South America, where they make Presidents by military pronunciamientos. What will happen in China we do not yet know, though events seem to be conducting the people to a loose confederation; but the words "China is a Republic" do not convey much information, except that she has got rid of her Emperor. Whether her new ruler will be the same thing under another name remains to be seen.

MEANWHILE, Chinamen have been explaining to Europe and the world at large some of the ideas on which their revolution is based. They have studied history, and compare it with current events. One of them said not long ago: "We are fighting for what Britons fought for in the days of old, for what America and France fought for." We who have tried to understand the struggles of these three peoples may have various conceptions of the object thus referred to. The Chinaman interprets it thus: "We are fighting to be men in the world, to cast off the oppressive, vicious, tyrannous rule that has beggared and disgraced the country, obstructed and defied foreign nations. We wish to win the laurels of freedom." At what periods in the history of Britain, France, America, were these the objects of struggle? Were they ever in the history of any of these countries combined as they are in China to-day? What meaning does the Chinaman attach to the word "freedom"? Another of that nation said they were fighting "for liberty, freedom, and good government." What do these words respectively mean?

As an illustration of what we have said above of the difficulty of defining the word "republic," we may quote President Taft, of the United States of America. He said he would veto tariff Bills until Congress had facts on which to base tariff changes, and added: "It is said that in so doing I have acted the part of George III. I doubt if he exercised the veto power as much as I have done, and certainly the present King of England would not exercise it, because it would not be safe. But we have a

different system here." You need not doubt, Mr. Taft. George III. said once he hoped he should never be obliged to use his right of veto, and he never was. But then he could influence the House of Lords, as in 1783, or his Ministers, as in 1800-10. George V. is not likely to use the veto, because our King does not correspond now to the American President, however much he may have done so in 1783-9, when our friends there were shaping the Constitution. We are, in respect of the one-man's "veto," more "republican" than the United States.

THERE is great difficulty in finding a definition for the word "civilisation." We have so enlarged its meaning that it now has little connection with the words *civis* and *civilis*, from which it is obviously derived. But assuming for the moment that it connotes at least a considerable advance in man's knowledge of nature, and in his power to use the material world for his benefit, we ask: What is the relation between civilisation so defined and the phenomenon called government? Governments as such, in their relation one to another, seem to welcome advances in physical science, such as aviation, by which they obtain control over powers of destruction, and in their desire to better the lot of those who are under their protection and control there are many practical results of scientific discovery which they are glad to use. But what about matches? Are the Governments of France and Germany favourable to the invention of lucifers? We ask this apparently strange question because we hear on all hands that it is impossible to get a good lucifer match in France, and we read recently in the newspaper that in Germany, so prohibitive is the tax on these (we were going to say necessities, so used are we to the convenience of them), that folk are harking back to flint and tinder to get light and heat.

ITEMS OF INTEREST.

GENERAL.

THOUGH Lord Lister took little active part in the educational work of schools, his death on February 10th, at eighty-four years of age, cannot be passed over in silence, for his life must be held in grateful remembrance by the whole civilised human race. Fifty years ago the slightest surgical operation was attended with great danger, on account of mortification of the wound and blood-poisoning due to the introduction of putrid matter into the body. By a long and systematic investigation of the causes of the inflammation which followed injuries to living tissues, Lord Lister was able to show that the danger which formerly existed could be avoided, and by so doing he founded modern surgery. When he commenced his experiments, the healing of injuries or wounds after an operation could not by any means be confidently expected as it can at the present time. It was almost impossible to avoid inflammation and festering of the parts affected, and the wound-fevers which usually followed were the despair of surgeons. Lister came to the conclusion that all the putrefactive changes to which wounds were subject, and which sent to the grave so many patient sufferers, were due to the presence of bacteria. To prevent this action, he developed a system of careful disinfection of everything which came into direct or indirect contact with a wound. He invented also an antiseptic dressing which excluded bacteria from the wound and assisted the natural tendency of tissues to heal themselves. The results obtained since Lister's methods were introduced in the seventies of last century are astounding in their success. To-day, thanks to his careful scientific work, surgeons are

able to carry out the most difficult operations without any fear of the terrible mortality which troubled those of a past generation. Thousands of people alive and happy at the present time owe their lives and their relief from suffering not so much to the skill of a surgeon as to the knowledge of the means of preventing inflammation by methods indicated by Lister's work. Many indeed are they who should rise up and call him blessed.

It should not be many years before fully trained mistresses of domestic science, household economy, and housecraft are found in all large secondary schools for girls. King's College, London, has successfully inaugurated a scheme which should ere long make available for women a complete and practical course of study of university standing in these important subjects, to which increasing importance is being given year by year in girls' schools. King's College last year made an appeal for the sum of £100,000 to carry out the scheme of work which was considered necessary; £20,000 was wanted to provide a hostel for the practical training in domestic arts and as a residence for women students, £20,000 for building and equipping laboratories, and £60,000 for the endowment of salaries for professors and lecturers. The whole of the £100,000 required has been subscribed. Lord Anglesey gave £20,000 to build and equip the laboratories, and another £20,000 was given anonymously to found the hostel, which the Queen has allowed to be called "Queen Mary's Hostel." Mrs. Wharrie gave a sum of £20,000 to provide for the teaching of chemistry in memory of her father, the late Sir Henry Harben, and when it was known that £30,000 was required to complete the amount, another donor, who had already by his influence rendered splendid service to the movement, at once came forward and gave this amount to complete the endowment. The fund will be administered in accordance with the terms of the trust deed by an executive committee composed of representatives of the subscribers and of King's College for Women. Negotiations are now proceeding respecting a site for the hostel and for the new buildings.

THERE is probably no branch of art study which admits of so little opportunity for putting principle into practice as that of mural decoration. With the view of removing the difficulties which surround the young artist in this connection, and at the same time to encourage art students to practise wall-painting as part of their training, a scheme has been formulated which should commend itself to all who are interested in the decoration of schools and other public buildings. A thoroughly representative committee has been formed to carry out the arrangements of this scheme, with Mr. D. S. MacColl as chairman, and numbering among its members Prof. Lethaby and Moira, of the Royal College of Art; Prof. Fred. Brown, of the Slade School; Mr. Walter Crane, Dr. Kimmins, and other eminent artists, teachers, and critics. In a circular which has just been issued by the committee, the authorities of schools and other institutions are invited to offer suitable wall spaces for experimental purposes. Details of size and position of these spaces, and of the character of the building, will then be distributed among artists and the art schools, together with other particulars of a "Competition of Designs" for the filling of these spaces. Competitors at present will be limited to artists and students living in the London district, though it is hoped that similar competitions will be held later in provincial centres. In addition to mural decoration, there will be a competition, open to architects, for designs showing the disposition of school-room fittings in conjunction with a scheme of decoration.



THE most promising designs sent up in connection with these competitions will be shown at an Exhibition of Mural Paintings to be opened at Crosby Hall, Chelsea, in the latter part of May next. Here the paintings may be inspected and criticised, and the authorities of the buildings offering spaces will be invited to record their preferences. In the event of a design being selected for execution, it is hoped that the actual expenses of material and scaffolding will be met by the authorities, but the committee has signified its willingness, if funds allow, to set apart a sum for the expenses of the first experiments, including some small remuneration for the painter. Offers of wall spaces for experimental purposes have been received already from several representative London schools and institutions, but further offers would be welcomed by the committee, who also appeal for subscriptions to enable them to develop the scheme to the utmost extent. Copies of the circular giving full particulars of the scheme and competition may be obtained from the honorary secretaries, Mural Decoration Committee, Crosby Hall, Cheyne Walk, Chelsea, S.W.

It is curious how persistent a legend is. One of these legends is that at the establishments of private tutors the pupils (or "crammers' cubs," as the old-fashioned call them) loll about in easy chairs smoking strong cheroots with pints of neat curaçoa at their elbows, while an uncannily cute tutor dictates wily tips to them in the intervals of gambling with them. He has probably acquired the necessary examination paper by fraud or bribery, and thus passes his students by dishonest means. Even such an author as Sir A. Conan Doyle makes his arch-villain, Moriarty, an ex-army coach; and the villain in one of the autumn melodramas at Drury Lane belonged to the same profession, and kept up the old tale. The truth, of course, is far more prosaic and less lurid. If ever there were any establishments where pupils were allowed to act as they pleased, they have disappeared by the force of the survival of the fittest. For coaches live by their successes; if their pupils fail, they fail too. Consequently, the work done with them is to the work done at public schools in the proportion of five to one. We are led to make these remarks by a letter of Mr. J. E. C. Bodley in the February Educational Supplement of *The Times*. Mr. Bodley takes up his pen to fulminate against Oxford and its desire to pluck all candidates who present themselves. He quotes some "distinguished classical scholar of Oxford" as saying that "at Cambridge they try to pass candidates; at Oxford they try to plough them." On the face of it this seems improbable, for Oxford must need undergraduates as much as any other university. Mr. Bodley appears to know little of private tutors, for he talks of learning "examination dodges in the undesirable atmosphere of a crammer's establishment." If some of those who fail to pass a simple examination like Responsions had learnt how to work in such an establishment, their fate might have been different and their self-reliance increased.

THE modern languages holiday courses arranged by the Teachers' Guild are 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. To ensure as much opportunity as possible of speaking the language of the country, arrangements are made by which the students board with families in parties, usually not exceeding two or three. While general subjects of foreign life, conversation, and customs are dealt with in lectures and classes, much matter is introduced which is intended

to be serviceable to candidates for certain examinations in England, particularly those of the Universities of London, Oxford, and Cambridge. Attention is paid to phonetics and accurate pronunciation, and the lectures are given by professors of experience and repute. Students are recommended to read beforehand the authors prescribed for the courses. Those who follow an organised holiday course will acquire a better knowledge of the language in a month than in a much longer period without such planned arrangements. All instruction is given in French, German, and Spanish, respectively. To derive benefit from the courses, students should already have at least some knowledge of the written language. Those who have no knowledge at all of the spoken language, or very little, are advised to choose the elementary classes in the different centres. The lecturers in the advanced classes speak as slowly as necessary, but assume that their listeners are capable of understanding the spoken language. The courses will commence at Honfleur in France, Santander in Spain, and Lübeck in Germany, in the first week of August. The courses will occupy not less than three weeks in any centre. Students are advised, when possible, to stay a short while longer in the country, for it is about the end of the third week that consciousness of progress begins to be felt, and some further practice after this stage is reached is very valuable. For information readers should address: "The Teachers' Guild, 74, Gower Street, London, W.C.," from which office a handbook, giving fuller details, will be issued during the present month.

THE Books and Apparatus Subcommittee of the London County Council Education Committee has recently been revising the list of books recommended for prizes in elementary schools. In a report submitted to the Education Committee, the subcommittee gives a list of the books which proved most popular among the prize-winners in elementary schools during 1911. It is interesting to note the perennial interest of Andersen's "Fairy Tales," "Robinson Crusoe," and "Tom Brown's Schooldays." The following list, which we reprint from the report, will prove of service to teachers who are in charge of school libraries, since the likes and dislikes of children vary little, whatever their social grade:

Book	Number of copies	Pos in 1910
Andersen's Fairy Tales	3,347 ...	1
Robinson Crusoe	2,365 ...	2
Tom Brown's Schooldays	1,984 ...	3
Grannie's Wonderful Chair	1,741 ...	8
Little Women	1,663 ...	7
Tanglewood Tales	1,658 ...	5
Grimm's Fairy Tales	1,510 ...	4
Tales from Shakespeare (Lamb) ...	1,442 ...	7
Old Curiosity Shop	1,416 ...	9
Little Duke	1,336 ...	10
Westward Ho!	1,264 ...	14
Water Babies	1,223 ...	12
Coral Island	1,186 ...	11
Heroes	1,186 ...	13
John Halifax, Gentleman	1,178 ...	—
Twin Pickles (E. Campbell)	1,121 ...	—
Ivanhoe	1,120 ...	16

The books entitled "John Halifax, Gentleman," and "Twin Pickles," had no place among the seventeen most popular books in the year 1910. These two books have superseded "Peter the Whaler" and "David Copperfield."

SATISFACTORY progress is being made in the arrangements for the Imperial Conference of Teachers to be held next summer, under the auspices of the League of the Empire. In connection with the raising of £1,000 for the cost of the gathering, it is reported that £100 has been voted by the Rhodes Trustees, £100 granted by the

Imperial Education Trust, and £25 sent by the Witwatersrand Education Committee of South Africa. Numerous offers of private hospitality are reaching the offices of the League at Caxton Hall, Westminster. The conference will be entertained by Colonel Bowles, chairman of the Middlesex Education Committee, at Forty Hall, Enfield. A party of teachers, probably 100, or even 150, representing all parts of Canada, will sail from St. Lawrence ports on July 5th to take part in the conference. The island of Barbados will be represented. One of the South African delegates will be Dr. N. M. Hoogenhout, a member of the Transvaal Council of Education, and vice-president of the Pretoria Normal College. The Teachers' Associations of Kimberley, Graaf Reinet, Port Elizabeth, Barkley East, and Swellendam have already appointed delegates, and others will follow. Among the Australian representatives will be the Rev. Charles J. Prescott, the headmaster of Newington College, and Miss F. Mildred Fry, headmistress of the Brighton College, both appointed by the Teachers' Guild of New South Wales. The New Zealand Secondary Schools Conference is sending its president, Mr. Frith, headmaster of Wellington College. From India, Mr. W. H. Sharp, Director of Public Instruction for Bombay, and Mr. H. J. Bhabha, late Inspector-General of Education in Mysore State, will represent the Bombay Teachers' Association.

UNDER the direction of Mr. F. R. Benson, the annual series of dramatic performances at the Memorial Theatre, Stratford-on-Avon, will be given by the F. R. Benson Shakespearean Company. The play chosen this year for the birthday is "Antony and Cleopatra." The performances will commence on April 22nd, and last for three weeks.

THE annual meeting of the Moral Education League was held on February 13th at the Royal Society of Arts. The report records a steady increase of support at a time when the "religious difficulty" in education is not actively before the country. During the year, the League's official demonstrator, Mr. F. J. Gould, delivered more than fifty demonstration moral lessons in many parts of Great Britain and Ireland, and nearly the same number in leading cities of the United States of America. The League claims to have exercised, during the year, a considerable influence in India, France, Tasmania, and the United States of America. In France a Moral Education League, under the most representative and influential auspices, has been created; in India the League's book of moral lessons for use in schools and families in India has been adopted by the University of Calcutta, the Government of Bengal, and, in large part, by the Government of Bombay; the Tasmanian Education Department has provided for moral lessons in all grades of its primary schools; while in the States active steps have been taken toward the foundation of an American Moral Education League. The annual address was delivered by Dr. Sophie Bryant, on "The Many-sidedness of Moral Education."

A MEETING of the Leicester, Leicestershire, and Rutland Association of Secondary School Teachers was held on February 10th. The following resolutions were adopted: "That in the opinion of this association the multiplicity of competitive examinations should be corrected, and a definite attempt made by the Board of Education by means of conferences to unify the demands of the universities and other examining bodies." "That while regarding external examinations as a wholesome stimulus and a healthy objective in secondary-school life, this association is of the opinion that they should be based as closely as possible on the teachers' syllabus (of a definite standard), and that

their results should be corrected, especially in border-line cases, by the school record, and supplemented with interview examinations by the inspectors of the Board of Education." "That the abolition of an external examination of the Junior Local standard is not desirable." "That in the event of a Central Examinations Council being established, the universities should remain separate school-examining bodies, under general control."

THE articles in the January issue of *Science Progress* are very suggestive, and will be of considerable interest to the thoughtful reader. The magazine is one which should be found in every school library: no other journal gives such a clear picture of the modern trend of scientific thought. Attention may be directed in particular to Lieut.-Colonel Wood's essay on animal sanctuaries in Labrador, which gives a very realistic picture of some aspects of this little-known country; though eleven times as large as England, it has a population hardly numbering 20,000. Facts are quoted to show that animal life in Labrador is being recklessly and wantonly squandered, and a strong plea is made for the establishment of a sanctuary there, for which it is claimed to be by far the best country in the world.

The Geographical Journal for January contains an important article by Mr. B. C. Wallis entitled "Measurement in Economic Geography: its Principles and Practice." Mr. Wallis quotes with approval Lord Kelvin's well-known dictum that only when we are able to give quantitative expression to our conclusions do we really know something about our subject. It is suggested as a working hypothesis that if statistical data be expressed as percentages on the average for short periods, the results obtained tend to be constant within an error of 5 per cent. He gives numerous convincing illustrations of his conclusions, from which we select a few examples. About 1909, France produced one-tenth of the world's wheat; in the decade preceding 1909 the variation from this did not exceed a quantity equal to 1/250 of the world's wheat. The United States has produced a proportion of the world's maize varying from 72 per cent. to 78 per cent. during the period 1895-1909; *i.e.*, the United States produces three-quarters of the world's maize. We commend this article specially to teachers of commercial geography.

THE London branch of the Association of Assistant-masters in Secondary Schools is organising a meeting, to be held at 3 p.m. on March 9th, at which the Insurance Act, with special reference to secondary-school teachers, will be explained. Steps are being taken to form an approved society for secondary-school and university teachers. The place of meeting will be announced later. Particulars may be obtained on application to Mr. H. P. Lunn, The County Secondary School, Holloway; Hilldrop Road, Camden Road, N.

SCOTTISH.

EDINBURGH SCHOOL BOARD, which has frequently of late years given a lead to the rest of Scotland in educational administration, has once again shown its wisdom and prescience by erecting a group of buildings which are intended to form the nucleus of a trades link. The buildings are meant to serve as a connecting link between the day school and the workshop or factory—to be, in short, an apprenticeship school of the best kind. In the ten workshops that have been provided there are tools and appliances for teaching the following trades: cabinet-making, carpentry, plumbing, tinsmithing, brass-finishing, moulding, pattern-making, upholstering, and tailoring. Lord Pentland, in formally declaring the workshops open,

expressed warm appreciation of the pioneer work the Edinburgh School Board is doing in this field. He believed that these workshops would serve as an elementary technical college, teaching the pupils the theory and practice of their trade right through until they were thoroughly efficient workmen. In these days of excessive division of labour it was a great boon to offer trade apprentices the chance of being saved from the narrowing influence of specialisation. While these classes would be opened in the first place as evening continuation classes, he hoped that before long employers would see it was to their advantage, as well as to that of their apprentices, to encourage attendance during the ordinary working hours.

PROF. LODGE, Edinburgh University, in the course of an address on the "Teaching of History in Schools" to the Glasgow Branch of the Educational Institute, said that three main questions gather round the subject: (1) Why should history be taught? (2) What sort of history should be studied? (3) How should it be taught? While laying stress on the value of the subject as a training ground for the imagination and the judgment, its place in the school curriculum can best be justified by its relation to the great social and political problems of the day. History is a necessary part of a training in citizenship. The most dangerous feature in the public life of the day is the rivalry of the two political parties in offering bribes or doles to the electorate. A thorough training in the history of the past may be regarded as the best counter-actant to these appeals to class or sectional interests. In regard to the kind of history to be taught, Prof. Lodge held that it should vary with the stages of the pupils' development. With early stages it should make appeal to the imagination, and for this purpose the great epic stories of the Bible, of ancient Greece and Rome, and of national history generally would be most effective. Later it would be necessary to go through periods systematically, and for this a certain amount of drudgery at dates was essential. As to the methods of teaching, Prof. Lodge held with Rousseau that every method was good *excepté l'ennuyeuse*. He warned his hearers against the tyranny of the special period and the history text-book. The latter is only a skeleton. The teacher must clothe it with flesh and blood.

DR. BOYD, Glasgow University, speaking to the Stirling teachers on "The Overloaded Curriculum," dealt with the subject from a broad and philosophical point of view. The root of the evil, he contended, is the absence of guiding principles in educational practice, and the only cure for it is the development of a science of education by the teaching profession. What is needed is a periodical overhauling of the school system by those who work it with the view of keeping both curriculum and methods within reasonable bounds. In the first place, there is constant need of a jealous scrutiny of the materials of instruction to make sure that what is being taught is really worth teaching. We should do well to scrap periodically such subjects, or parts of subjects, as experience has shown to fail in their appeal to the child mind. In the second place there is much room for economy of effort by the use of right methods. Judicious experiment will enable the time spent in teaching most subjects to be considerably reduced. A further gain will be secured by refraining from teaching subjects prematurely. An immense amount of time and effort is expended at present in seeking to teach at too early an age subjects which, if we only await Nature's time, will be got up without difficulty and without effort.

IN the High School, Glasgow, Sir Henry Craik, M.P., delivered an address to the Secondary Education Association on "The Future of Secondary Education in Scotland." He said that by training and predilection he was an adherent of the classics, but, during his twenty years' administration of the Education Department, he was certain no bias in that direction could be charged against him. At the present time there is arising everywhere a demand for utilitarian education, an education that will have a direct and palpable bearing on the life-work of the pupils. This means in the long run making schools into a mimicry of the workshop and the counting-house, and ignoring the value of education *per se* altogether. He had himself during his administration done much to introduce a greater measure of *realism* into the school system, but he had done so for its educational and not for its vocational value. The more it is sought to introduce vocational training into their schools, the poorer will be the results, even from the utilitarian point of view.

SINCE the formation of the Historical Association of Scotland in the autumn of last year, much progress has been made in extending its operations and in increasing its membership. A branch has just been formed in Edinburgh with the Rev. Prof. MacEwen as president, Miss Bird secretary, and Mr. Ewing treasurer. The west of Scotland has been quick to follow the example of the east, and a branch has been inaugurated there under the most promising auspices. Prof. Medley has been elected president and Mr. J. M. Ramsay secretary and treasurer. The Edinburgh branch has undertaken as its first work the preparation of a bibliography of local history. Some members of the branch who are authorities on questions of antiquarian interest and the history of different districts have agreed to give information on such matters to all teacher members. Anyone desirous of taking advantage of this offer should intimate the same to Miss Bird, 5, Etrick Road, Edinburgh.

GLASGOW UNIVERSITY COURT has again had under consideration the question of an inclusive fee for students in the various faculties. Dr. Hutchison said that neither under the Act of Parliament constituting the universities nor under the ordinances has the Court any power to impose inclusive fees. They are doing so entirely at the bidding of the Lords of the Treasury, and Dr. Hutchison would like to know how and when they had become experts in university government. Sir David McVail said the question was of undoubted importance to many poor students. These, at the very time when increased grants were coming to the universities, were to have their fees increased. He protested against any Government department directing them to take any steps which were inconsistent with the Acts under which the universities were constituted. Ultimately, the principle of an inclusive fee for Arts students was approved on condition that any student, not being a beneficiary of the Carnegie Trust, who could show that the fees for the classes taken for his graduation course would, if paid separately, be less than the inclusive fee now proposed, should have the balance repaid to him by the University.

IRISH.

THE Classical Association of Ireland held its annual meetings on February 1st. The report for 1911, which was adopted, shows that the association is taking a direct interest in the classical teaching of intermediate schools, and is endeavouring both to encourage and to improve it. The association gave last year, and offers again this year, a prize of £5 to the student obtaining the highest marks

in Greek in the Preparatory Grade. But more important is the inauguration of a "teaching improvement fund," part of which has been expended in providing a small loan collection of lantern-slides, coins, casts, and photographs illustrative of classical subjects, intended for circulation, free of cost, among schools the teachers of which belong to the association. The Intermediate Board of Education is willing to aid this scheme financially if the Treasury will consent. The annual public meeting was held in the evening, when the chair was taken by the retiring president, Dr. W. J. M. Starkie, chairman of the Intermediate Board and Resident Commissioner of National Education, and the president for the present year, Dr. L. C. Purser, delivered his address on "Lucian and his Age." A vote of thanks was moved by Mr. R. C. Seaton, honorary treasurer of the Classical Association (of England), and supported by Prof. W. A. Goigher.

At the annual meeting of the Central Association of Irish Schoolmistresses, held in Dublin, a paper on "Registration and its Possibilities and Prospects in Ireland" was read by Mr. J. Thompson, headmaster of the High School, Dublin. An account was given of the failure of registration in England, of the negotiations leading to the establishment of the new Teachers' Registration Council; the different conditions of Irish teachers were pointed out and the different nature of the problem in Ireland. The meeting was also addressed by Miss Tremaine, Miss Cunningham, and the president, Dr. White.

THERE appears to be a possibility of a scheme of registration being drawn up in Ireland in the near future. Several conferences have taken place, in which the Intermediate Commissioners have taken part, between representatives of various associations of intermediate teachers, Roman Catholic and Protestant, men and women, clerical and lay, with the view of arriving at some common scheme to present to Mr. Birrell, the Chief Secretary, in connection with the claim for more money from the Treasury for Irish intermediate education (a claim which has been admitted), and with the public agitation for the improvement of the position of teachers in intermediate schools, with which it is known that Mr. Birrell is in sympathy. As the outcome of a final conference with Mr. Birrell himself, it is stated that Mr. Birrell will draw up a scheme for registration which will be put into a Bill to be submitted to Parliament for granting increased sums to Irish intermediate education. This Bill will also include provision for a pension scheme. It is to be hoped that this statement is true. Meanwhile, Mr. Lloyd George promised something for the present financial year which should be forthcoming for the benefit of assistant teachers.

THE Department of Agriculture and Technical Instruction has reprinted from its *Journal* the article on "Technical Instruction in Bangor," by the principal, Mr. P. Pyper. The article, which is illustrated by photographs, is the eleventh of a series relating to centres which differ widely in population and needs, and is intended to be of interest and value in view of future developments in towns in which permanent buildings have not yet been provided.

THE National University of Ireland has issued a list of additional regulations adopted by the Senate which introduce a variety of modifications and alterations relating to several courses and examinations. The courses for the travelling studentships for 1912 are also given. In 1912, and in each alternate year after, one travelling studentship will be offered for competition in each of the three following subjects: (1) mathematics and mathematical

physics; (2) (a) modern languages, or (b) Celtic studies, including Celtic archæology; (3) philosophy; and (4) medicine.

WELSH.

WALES must not claim the position of the leading educational community unless it alters its record in primary education. For instance, at a meeting of the Cardiganshire Education Authority lately, it was mentioned that out of a total of 400 teachers in the county, 250 were employed with stipends of £50 and under. Notice of motion was given to confine the headships of primary schools to certificated teachers. It was pointed out that since the Cardiganshire Education Committee had come into existence salaries of teachers had increased to the extent of £4,000 to £5,000. Instead, however, of this being a cause for self-satisfaction, it raises the suggestion of the shocking state things must have been in if they were worse than they now are. When will county authorities learn that one of the best of all standards of educational zeal is to be found accompanying the standard of comfort in the living of the teacher?

THE statement of Principal E. H. Griffiths, of the University College of South Wales, Cardiff, with regard to State assistance to the universities and colleges has been issued in pamphlet form. He points out that the percentage of full-time students to the total number of students in the English State-aided universities is 37.3, whilst in Wales the proportion is 80.2 per cent., and if we confine ourselves to degree and post-graduate students, the percentages are for England 25.1 per cent. and for Wales 72 per cent. If, then, capitation grants were given, not on the total number of students in the colleges, but upon the number of full-time degree and post-graduate students, the case of the Welsh colleges would be greatly altered for the better financially. On this basis, Principal Griffiths calculates that an additional grant of £8,187 would be required to place Wales in an equal position with England as regards these grants.

COMPARING State grants to Ireland with those to Wales, Principal Griffiths points out that under the Irish Universities Act, 1908, annual payments were authorised, Queen's University, Belfast, £18,000; National University of Ireland (University College, Dublin), £32,000; University College, Cork, £20,000; University College, Galway, £12,000, making a total Irish annual grant of £82,000. Taking the National University of Ireland alone, the grant is £64,000, whilst for the University of Wales and its three constituent colleges the grants reach £25,500. There is, therefore, a larger grant to the National University of Ireland of £38,500 per annum. The relation of percentage of the grants to expenditure works out as follows: Welsh colleges: Aberystwyth, 53.1; Bangor, 57.8; Cardiff, 45.6. Irish colleges: Dublin, 132.6; Cork, 109.7; Galway, 122.6. Or, taking the average, for each of the Welsh colleges 51.1, for each Irish college 122 per cent. It should be added that the total number of students in the Irish colleges for 1908 was 762, for the Welsh colleges 1,387. Principal Griffiths, therefore, presents a strong case if Wales is to receive financial equality of treatment from the Treasury.

WITH regard to the movement for a separate Welsh Department for Agriculture, mentioned in previous notes in these columns, it should be stated that the Montgomeryshire Agricultural Association has protested against the idea on the ground that it would be a waste of public money. The subject has been discussed at a council meeting of the Welsh National Agricultural Society, when

opinions were divided. It was agreed that the proposed new Board would cause considerable friction, especially in the border counties between England and Wales. If there were two Boards, it would be possible, for instance, for the English Board to say, when sheep-scab broke out in some remote corner of Wales, that the whole of the Principality should be interdicted and its trade restricted. Again, it was urged that representatives of the county councils would be brewers, timber merchants, drapers, &c., and that it would be more reasonable that agricultural societies should have control. Eventually it was decided to defer further consideration of the matter until the March meeting of the Council at Llandrindod.

SWANSEA TOWN COUNCIL has an Art Committee, which controls the Swansea Art Gallery. At the last meeting, the principal of the School of Arts and Crafts submitted a report of a visit of a deputation representing the committee to the Welsh Department of the Board of Education in London. They visited the Camberwell School of Arts and Crafts and the Victoria and Albert Museum. The secretary to the Welsh Department recognised the high position of the Swansea Art Gallery, and suggested that instead of localising their efforts, they should emphasise to a greater extent the national aspect of art. He further recommended that teachers in elementary schools should be encouraged to assist in the development of art, that there should be an increased study of Celtic history, mythology, and heraldry, and that the committee should get into closer contact with controllers of the great industries of the district. It is announced that the following authorities on art and art-teaching have promised to deliver lectures at Swansea: Sir W. Gascombe John, R.A.; Mr. Augustus Spencer, principal of the Royal School of Art; Prof. Lethaby; Prof. Beresford Pike; Mr. W. B. Dalton, principal of the Camberwell School of Art; and Mr. A. T. Davies, secretary to the Welsh Department of the Board of Education.

ATTENTION has already been directed in these columns to the work of the first school clinic in Wales, and it is now reported that the Board of Education has sanctioned the establishment of a small school clinic in Cardiff, and that this is in operation, though as yet necessarily on a very small scale. The medical officer of health recommends the founding of a complete school clinic at a cost of £250 for equipment and an annual maintenance charge of £90. He refers to the well-known school clinic at Bradford, which has general, aural, ophthalmic, ring-worm, and dental departments, and has a suite of ten rooms in the Town Hall. The Cardiff medical officer of health is of opinion that the efforts of school nurses, teachers, and school-attendance officers require supplementing by provision of prompt and efficient medical treatment of cases and a thoroughly well-equipped school clinic. Inattention, ignorance, or delay of parents in dealing with notices of the necessity of medical treatment for their children seem to call for further provision.

The Sun's Babies. By Edith Howes. ix+236 pp. (Cassell.) 3s. 6d. net.—Here is a most acceptable volume of simple stories and verses about flowers and other "sun's babies." They are somewhat on the lines of Mrs. Gatty's "Parables," but are intended, evidently, to appeal to younger readers. The author has a dainty fancy and a sure literary touch. The book is attractively got up, and contains four good illustrations in colour by Frank Watkins. It will be appreciated as a gift-book.

STILL MORE GEOGRAPHY BOOKS.

- (1) *Historical Geography of the British Colonies.* Vol. v. *Canada.* Part III., Geographical. Part IV., *Newfoundland.* By J. D. Rogers. v+302 pp. and ix+274 pp.; maps. (Oxford: The Clarendon Press.) 4s. 6d. each.
- (2) *The Highlands of South-west Surrey. A Geographical Study in Sand and Clay.* By E. C. Matthews. vi+122 pp.; maps and photographs. No. 2 of the series of Geographical Studies, the London School of Economics and Political Science. (Black.) 5s. net.
- (3) *Cambridge County Geographies. Aberdeenshire.* By A. Mackie. x+198 pp. *Huntingdonshire.* By W. M. Noble. ix+152 pp. *Worcestershire.* By L. J. Wills. ix+154 pp.; maps and photographs. (Cambridge University Press.) 1s. 6d. each.
- (4) *The Cambridge Manuals of Science and Literature. New Zealand.* By the Hon. Sir Robert Stout and J. Logan Stout. vii+185 pp.; photographs. (Cambridge University Press.) 1s. net.
- (5) *The Opening Up of Africa.* By Sir H. H. Johnston. The Home University Library. 254 pp.; maps. (Williams and Norgate.) 1s.
- (6) *Climatic Control.* By L. C. W. Bonacina. vi+167 pp.; illustrations. (Black.) 2s.
- (7) *A Handbook of Geography.* By A. J. Herbertson. Vol. i. *General Geography. The British Isles and Europe.* xii+500 pp.; illustrations and maps. (Nelson.) 4s. 6d.
- (8) *Pitman's Commercial Series. Commercial Geography of the British Empire Abroad and Foreign Countries.* 190 pp. 1s. 6d. *Pitman's First Steps in Business. Commercial Geography.* By J. Stephenson. 77 pp.; maps and diagrams. 8d. (Pitman.)
- (9) *A Class Book of Practical Geography.* By E. Young and J. Fairgrieve. 160 pp.; maps and diagrams. (Philip.) 1s. 6d.
- (10) *The Junior Scientific Geography. The British Empire.* By E. W. Heaton. vii+137 pp.; maps and diagrams. 1s. net. *Questions and Exercises in Geography.* 1. *The World.* By R. J. Finch. 48 pp.; maps and diagrams. 6d. net. (Ralph, Holland.)
- (11) *Geography of the British Isles.* By J. F. Unstead and E. G. R. Taylor. 60 pp.; maps and diagrams. 1s. 6d. *Commercial Geography: General and Regional.* By J. F. Unstead and E. G. R. Taylor. viii+238 pp.; maps. 2s. 6d. (Philip.)
- (12) *The Oxford Geographies. Junior Geography Questions.* By F. M. Kirk. *Statistical Appendix.* By E. G. R. Taylor. 64 pp. (Clarendon Press.) 1s.
- (13) *Peeps at Many Lands. Wales.* By E. M. Wilmot-Buxton. 88 pp.; map and coloured illustrations. 1s. 6d. net. *The British Empire.* By F. Fox. 199 pp.; thirty-two coloured illustrations. 3s. 6d. net. (Black.)
- (14) *Peeps at Industries. Sugar.* By E. A. Browne. 88 pp.; photographs. (Black.) 1s. 6d. net.
- (15) *Europe in Pictures.* By H. Clive Barnard. 64 pp.; maps and illustrations, some coloured. (Black.) 1s. 6d.
- (16) *Handbook to the Navy League Map.* By C. H. Crofts. 168 pp. (W. and A. K. Johnston.) 1s. 6d.
- (17) *Highroads of Geography. Book III. South Britain.* 192 pp.; photographs and coloured pictures. (Nelson.) 1s. 3d.
- (18) *Oxford Elementary School Books. First Steps to Geography.* By M. S. Elliott. 144 pp.; illustrations, some coloured. (Oxford University Press.) 10d.
- (19) *The British Isles.* By E. M. Hughes. 154 pp.; maps, diagrams, and photographs. (Marshall.) 1s. 6d.

- (20) *Philips' Modern School Atlas of Comparative Geography*. By G. Philip. Eighty plates. (Philip.) 3s. 6d.
- (21) *The Edinburgh School Atlas*. Thirty-two pages of maps, twenty of index. (W. and A. K. Johnston.)
- (22) *The Scholar's Geographical Exercise Book. England and Wales*. 40 pp. (W. and A. K. Johnston.) 4d.
- (23) *The New Geography Atlas of the British Colonies, &c.* 44 pp. *The Ideal Scholar's Own Atlas and Geography*. 51 pp. (Glasgow: The Grant Educational Co.) 4½d. net.
- (24) *Improved Contour Outline Maps*. Enlarged form for teacher's use. *Europe*. (Philip.) 1s. net.
- (25) *Wilson's Folding Globe*. With maps of the world on (i) Mercator's projection, (ii) the same projection as the Globe in eight segments. (Philip.) 7s. 6d. net.

For the third time within a year the reviewer has before him a batch of new books on geography, and the question naturally arises: Who will use these books? Happily there is little doubt that certain of the books now under examination will serve a distinct purpose in connection with the teaching of geography. The Clarendon Press "Historical Geography" (1) is well known, and teachers will do well to see that these two new volumes find their place on the library shelves. Mr. Rogers has filled these books with facts; and as we have little room here to discuss these, it must suffice to add that the dominant feature of his treatment of Canada is that each province is a link in the chain which makes Canada, and that Canada itself is but a link in the chain of Empire; Newfoundland, in his view, "is an instance of a State absolutely dependent on world-trade, yet absolutely simple." "Cod, seals, herrings, whales, and the clownish lobsters mould the destiny of Newfoundlanders, and their pathway to reality lies through a life dedicated to the sea." The bibliographies add to the extreme usefulness of these volumes.

Miss Matthews's study of south-west Surrey (2) differs from that of her predecessor, Miss Smith, on the Reigate sheet of the Ordnance Survey in that it deals with a district which is mapped on about half of sheet 125 and a small adjoining portion of sheet 126 of the large-sheet series of the Ordnance Survey. Emphasis is laid upon the central upland block of this region round Hindhead, on the peculiarities of the River Wey, which provides an example of river capture, on the differences in vegetation consequent upon differences of soil, and upon the remoteness of the region from the main lines of development of this part of England.

The many excellences of the "Cambridge County Geographies" (3) are as prominent as usual in the three volumes now under consideration, but the circumstance that these three volumes should come under review simultaneously emphasises certain particulars which appear to be capable of improvement. Aberdeenshire and Huntingdonshire are stated to be predominantly agricultural, and Worcester has a large agricultural interest; yet the facts upon which these dicta rest appear to be inadequately investigated. These County Geographies are good as gazetteers and useful in the reference library.

The "Cambridge Manual" (4) provides a first-hand account of New Zealand. People, products, government are described; the special volcanic district near Lake Taupo is well illustrated, and the story of New Zealand's legislative experiments well told. Altogether this is a useful book to place in the hands of older pupils.

Sir Harry Johnston's little book (4) is suitable for the library; it summarises the principal features of the colonisation of Africa, and contains an account of the native races; the thoroughness of the work should not deter the older pupils from reading this book. It is difficult to place Mr.

Bonacina's book on climatic control (6); the preface states that it is a school text-book, but the inclusion of opinions which are in some cases acutely controversial makes us wonder what pupils should use this book.

Prof. Herbertson's new book (7) is a teacher's book, and aims at filling the gap between the ordinary school text-book and standard works such as Dr. Mill's "International Geography." The teacher will find a great deal that is extremely valuable in this work; the maps and diagrams are numerous, and an education in themselves; the sixty-seven pages on the morphology of Europe tend to give a distinct geological bias to the book. The sections on political geography do not show the same advance upon the ordinary school text-book as the remainder of the work would lead the reader to expect.

Geography attempts to answer the questions where? why there? commercial geography also attempts to say whence? and why thence? but the substitution of the political treatment of commercial geography for the regional treatment of scientific geography naturally leaves commercial geography suspect as a medium of education; and these two books (8), with the appeal to mere memorising and their failure to develop commercial geography from a basis of regional geography, tend to perpetuate the idea that geography is no more than a bread-and-butter subject. Until commercial geography attempts to answer the questions how much? why so much? after first answering the questions where? and why there? little justification can be made for the inclusion of commercial geography in a school course. Both these books do too much for the pupil; they perpetuate the map in which the name of a product is printed as a sign that such a product is found in that part of the world.

Messrs. Young and Fairgrieve (9) interpret the term "practical geography" so as to comprise "those portions of the subject that can be studied with the help of instruments," and include as "instruments" climate and distribution maps. The book contains three parts, the first two of which are an expansion and rearrangement of the practical portions of Mr. Young's "Rational Geography," while Part III. is new. This part deals with the surveying instruments, the chain, plane table, &c., map projections, hachures and contours, as well as exercises on Mr. Fairgrieve's water-level. There are some excellent exercises on contours.

Mr. Heaton has produced another of his scientific geographies, and Mr. Finch has based on these a set of questions and exercises (10). Mr. Heaton's book contains many "unconventional" sketch-maps, some of which are of doubtful value; for example, the two maps of India showing wind directions in summer and winter have the Western Ghats one-quarter of an inch from the west coast, which roughly means 250 miles, and the winter wind arrows across the thick line which represents the Himalayas.

The "Geography of the British Isles" (11) consists almost entirely of the pages dealing with these islands in the "General and Regional Geography" by the same authors. The "Commercial Geography" is also based upon the larger book; it is better than the commercial geographies noted above (8), and contains a large amount of useful information, although there is no attempt to answer the questions how much? and why so much?

There are twenty-six pages of questions, together with apparently the same statistical appendix which was issued in connection with the "Senior Geography," in the supplement to the "Junior Geography" (12).

The "Peeps at Many Lands" series is beautifully illustrated, and the separate volumes make suitable gift books;

it is doubtful whether the volume on Wales (13) has any other value; that on the British Empire would be useful in the library as a supplementary reader for both history and geography.

The "Peeps at Industries Series" is welcome; the illustrations and the interesting matter make the volume on "Sugar" (14) a valuable addition to the pupils' lending library. One point, however, should be noted: the general impression which this volume leaves on the mind is that cane sugar is of much greater importance than beet sugar; true, the fact that the two are of almost equal importance is mentioned, but the treatment does not support this fact—for British schools, the fact that beet sugar is our chief sugar import should warrant a much more detailed description in a book which claims as a special feature that it is written from first-hand knowledge.

The pictures in the volume on Europe (15) are good, although it is doubtful whether the child would realise that Mont Blanc is the highest mountain in Europe from the picture on p. 29; but the text has several weaknesses: a tidal wave is said to be a few feet high, and to hit the edge of the continental shelf, which is said to be 600 feet below sea-level; the sea is said to make winters in shore lands warmer, and this fact is given as the explanation of the north and south direction of the January isotherms in the North-east Atlantic Ocean.

The "Navy League Handbook" contains a sketch of naval history and a brief epitome of the component parts of the British Empire. Nos. 17-19 are texts for children at various ages, and serve to show the ways in which different authors appreciate modern tendencies in geographical teaching. Both the atlases (20, 21) contain orographical maps and an index; in both cases sea depths are indicated. Philips' atlas (20) contains also climate and vegetation maps; there is some doubt as to the advisability of showing rainfall for two parts of the year only, from May 1st to October 31st and November 1st to April 30th—e.g., these maps do not show readily the characteristic winter rains of South Africa and Southern Australia. The exercise books (22, 23) contain outline maps and pages of squared paper. The large form of the contour maps (24) will prove useful for class teaching.

The folding globe (25) consists of eight strips bounded by meridians 45° apart. These are connected near the equator, and are eyeleted at the poles. A stick provides the central axis, and the strips are fitted to the ends of the stick; a metal clip holds them in place. The globe can be readily mounted, and then presents the appearance of a regular eight-faced solid, with intervening ridges. In the hands of a skilful teacher such a globe would be useful; the globe is accompanied by two flat sheet maps, one of the eight segments and the other on Mercator's projection.

TWO GUIDES TO HISTORICAL FICTION.

(1) *History in Fiction: a Guide to the Best Historical Romances, Sagas, Novels, and Tales.* By Ernest A. Baker. Vol. i. English Fiction. viii+228 pp. Vol. ii. American and Foreign Fiction. 253 pp. (Routledge.) 2s. 6d. each.

(2) *A Guide to the Best Historical Novels and Tales.* By Jonathan Nield. Fourth edition. 518 pp. (Elkin Mathews.) 8s. net.

RATIONALLY planned and carefully executed guides to books are one of the most imperative needs of our day—not merely barren lists of book-titles almost as overwhelming as the catacombs of books they catalogue, but really helpful guides to the less negligible books in various depart-

ments of human interest. Such are both the books before us, and as such they deserve a warm welcome. Dr. Baker's handy little blue-clad volumes have now been on our shelves for some years, and have been in constant use. Mr. Nield's new edition, which appeared a few months ago, is nearly double the size of the third edition, and is, if possible, even better in quality. The two bibliographers make to each other complimentary critical allusions which seem to be eminently reasonable: Mr. Nield opines that "perhaps it would have been better if [Dr. Baker's] *exact dates*" were less frequently *inexact*, while Dr. Baker incidentally remarks that Mr. Nield's "useful" book "does not aim at this [*i.e.*, his own] degree of comprehensiveness." Mr. Nield in his new edition has departed from his former somewhat too select exclusiveness, and states in his preface that his lists now contain nearly 3,000 novels and tales, of which more than 2,000 are missing from Mr. Bowen's "Descriptive Catalogue" (which may probably now be regarded as definitely superseded) and some 1,300 from Dr. Baker's "History in Fiction." Assuming this statement to be correct—and the author's almost excessive carefulness amply warrants the assumption—Mr. Nield's "Guide" adds comprehensiveness to its old quality of trustworthiness, and may safely be pronounced one of the works of reference indispensable in any properly equipped general or school library, and in the private libraries of teachers of history throughout the English-speaking world.

Dr. Baker's work, however, has numerous valuable features which entitle it to at least a supplementary place. Its *format* is much handier; the volume dealing with "English Fiction" (complete in itself, fully indexed) costs only half-a-crown, and would therefore serve the turn of the teacher mainly concerned with British history; it includes many works which fall outside Mr. Nield's definition of "historical works," either because they were written during some past period with which they deal (which is very important from a linguistic point of view, and even more important as regards ideas and manners), or because they concern themselves with the last thirty years; and it is arranged by countries as well as by dates. But there are many curious gaps in one of these useful departments, *viz.*, "recent history." The Scots section stops abruptly with the Disruption of 1843, thus ignoring some of Mrs. Oliphant's best works and the "Kailyarders." In the African section Mr. Kipling's South African stories are omitted; though Mr. Mason's "Four Feathers" is mentioned, Sir Conan Doyle's admirable "Tragedy of the Korosko" is omitted; and if Mr. Morley Roberts's study of Cecil Rhodes, "The Colossus," is worthy of mention, why not also Mr. Anthony Hope's better known study of the same personage in "The God in the Car"? One wonders also why none of the huge crop of Balkan fiction by "S. C. Grier" (whose "Far East" stories are included in the Asia section), Frank Savile, and others find a place; are they appreciably less "historical" than the King Arthur stories, which are admitted?

The gravest defect in Mr. Nield's new edition is that all the new matter is in the form of a supplement to the third edition (1904). This supplement contains not only books published during the last seven years, but also omissions from previous editions; and there are separate indexes—laudably complete, it is true—to the old and the new parts. This is simply maddening in a work of reference. In the absence of any word of explanation, one must suppose there has been some hesitation in "scraping" quire-stock or stereotypes; but in the case of a book which appears to have had large and continuous sales this is insufficient excuse. While fully acknowledging the value

of the volume with its complete and accurate lists of stories and tales, its valuable bibliographies, and its copious indexes, we would express the earnest wish that, when a fifth edition is called for, Mr. Nield may be able to adopt a more convenient *format*, break up his long centuries-divisions into natural subperiods, give fuller descriptions, and by adopting a less expensive and more convenient typographical arrangement, cheapen and condense the book, and so enlarge the public which would benefit by his conscientious and useful labours. Finally, we would beg, petition, implore, and beseech our two authors to make a division of labour, letting Mr. Nield continue to perfect his "Guide to Historical Novels and Tales" and Dr. Baker supplement and bring up to date his invaluable "Guide to the Best Fiction."

THEORY AND HISTORY OF EDUCATION.

(1) *Outlines of Education Courses*. 189 pp. (Manchester University Press.) 3s. net.

(2) *The Educational Theory of Rousseau*. By W. Boyd. 368 pp. (Longmans.) 5s. net.

(3) *The Learning Process*. By Prof. S. S. Colvin. 336 pp. (New York: The Macmillan Company.) 5s. 6d. net.

(4) *A Brief Course in the Teaching Process*. By Dr. G. D. Strayer. 315 pp. (New York: The Macmillan Company.) 5s. 6d. net.

(5) *Experiments in Educational Psychology*. By Dr. D. Starch. 183 pp. (New York: The Macmillan Company.) 4s. net.

(6) *An Introduction to Psychology*. By Prof. R. M. Yerkes. 427 pp. (Bell.) 6s. 6d. net.

(7) *The Universities of the World*. By Dr. C. F. Thwing. 284 pp. (New York: The Macmillan Company.) 10s. net.

(8) *School Organisation for Secondary Teachers*. By D. H. Vachna. 284 pp. (Bombay: Ramchandra, Govind and Son.)

THE publication of the syllabuses of lectures delivered in the Department of Education in Manchester University (1) will, we believe, be cordially welcomed by those who are responsible for similar courses in other training colleges and training departments. Prof. Sadler's contribution, which occupies more than half the volume, should appeal to a still wider public, for he gives a brief, but comprehensive, survey of the history of education in England during the nineteenth century. The other contributions, including Prof. Findlay's "Systematic Review of the Principles of Education," are naturally more technical in character. The idea of issuing these syllabuses, so that they may be examined by others than the persons immediately concerned, is good, and the example set by Manchester might well be followed in other places where thought and care are so freely expended upon such work. The volume is especially opportune because of Prof. Sadler's withdrawal from Manchester. It is well that his lectures on educational history, even in barest outline, should be made generally available.

Another attempt to fill up the gaps which occur in the list of English works on educational history is Dr. Boyd's book on Rousseau (2). Dr. Boyd has evidently made a careful and sympathetic study of his subject, and he writes with freshness and animation. He is an ardent believer in Rousseau, holding that the "Emile," with all its faults, is the only modern work of the kind worthy to be put alongside the "Republic" of Plato. Still, this belief does not prevent the author from discriminating clearly between

the strong and the weak points of Rousseau's educational philosophy; and the result is a study of Rousseau not only exceptionally comprehensive, but also quite fair. We think Dr. Boyd was well advised to drop his original intention to write on the "Emile" alone, because Rousseau's educational theory is inseparably connected with his whole social philosophy. It is a pity that Dr. Boyd should have felt driven to make Sallwürk's German edition the basis of his references. Would not Miss Foxley's recent translation help in revising for the second edition?

From English books on education we turn to those which reach us from America. Foremost among them we are inclined to place Prof. Colvin's contribution to educational psychology (3). Prof. Colvin writes with full appreciation of the modern "functional," as distinguished from the obsolete "faculty," psychology; and he draws freely from the results of experimental psychology and pedagogy. His treatment of childish imagination is most interesting, and especially, perhaps, his defence of the use of myth by an appeal to the pragmatic conception of truth. Many students of education, and some practical teachers, will also thank the author for his clear statement of the present position as regards the vexed question of the "transfer of training," *i.e.*, the question how far any given bit of mental training affects one's ways of learning and doing other things.

A very different style of book, looking at the subject from the teacher's side, is that of Dr. Strayer, of Teachers College, Columbia (4). It is now nearly twenty years since American and English writers of the "Herbartian" persuasion began to set forth the "formal steps" of instruction for the supposed benefit of young teachers. Blow after blow has been dealt by successive writers at the doctrine of the "formal steps," because of its tendency to make obviously different kinds of lessons conform to a preconceived pattern—a tendency exemplifying the disservice which theory sometimes renders to practice. In this volume Dr. Strayer takes the sensible course of distinguishing between things that do really differ. He takes up in succession what he calls the drill lesson, the inductive lesson, the deductive lesson, the lesson which aims at æsthetic appreciation, the study lesson, and the review or examination lesson, and he rounds off his treatment of the teaching process with a consideration of some other practical aspects thereof. Though the book is distinctly American in its style and outlook, we think its general significance should be appreciated by those who are responsible for the training of teachers in England.

A very practical book (5), useful to those who believe in experimental psychology as an ordinary part of a training-college course, is that of Dr. Starch, of Wisconsin University. The experiments are selected on the ground of their suitability for class use, and their more or less direct bearing upon educational problems.

Prof. Yerkes's new book (6) is a treatment of elementary psychology better adapted, we think, for giving a rapid general view of the subject and its applications than for enabling the student to "think himself into" any of its specific problems. One of the leading features of the book is its insistence upon the logical method of the subject, *i.e.*, upon the distinction between facts, laws, and principles. We are not at all sure that the writer has not pressed these distinctions to the point of obscuring the truth that the description of facts passes insensibly into generalisation. The closing chapters, which treat of the relations of psychology to eugenics and to education, are quite interesting, though here, as elsewhere, the book provides a sort of bird's-eye view of what psychology is all

about, and does not profess to go far into any of its problems.

The remaining American volume which we notice is of a very different order. President Thwing, of Western Reserve University, Cleveland, is well known for his writings on college subjects, and in his latest book (7) he gives us brief descriptions of twenty of the chief universities of the Old World, beginning with Oxford and ending with Tokyo. The volume is amply illustrated and attractively "got up," and the descriptions, with only one exception, have the great merit of being based upon the author's personal visits. Such world-wide observation is rare, and makes the book all the more valuable and interesting for general purposes. The reader who wishes to study the origin, history, and function of universities must, of course, look elsewhere; but this work very well meets the case of the general reader.

Turning from American books, we notice, lastly, one which comes to us from India (8). The vice-principal of the secondary training college at Bombay has in this volume "elaborated and given out his lecture-notes" in a form convenient, we presume, for his students. It is probably for this reason that we find passage after passage in the book practically transcribed from a certain English treatise, but without any acknowledgment of the source. Anyone is, of course, at liberty to transcribe passages of any length into his private lecture-notes, but publication entails obligations which have not here been fulfilled. The book seems conveniently arranged, and the parts relating specifically to the organisation of Indian education are of interest to English readers.

THE PSYCHOLOGY OF EDUCATION.

(1) *The Psychology of Education*. By J. Welton. xxi+507 pp. (Macmillan.) 7s. 6d. net.

(2) *The Essentials of Psychology*. By W. B. Pillsbury. ix+362 pp. (Macmillan.) 5s. 6d. net.

(3) *The Place of Psychology in the Training of the Teacher*. By Prof. A. Darroch. vi+142 pp. (Longmans.) 2s. net.

(4) *Experimental Pedagogy and the Psychology of the Child*. By Dr. E. Claparède. Translated by May Louch and H. Holman from the fourth edition of "Psychologie de l'Enfant et Pédagogie Expérimentale." 5s. net.

(5) *An Introduction to Experimental Psychology*. By Dr. C. S. Myers. vi+156 pp. (Cambridge University Press.) 1s. net.

(6) *A Text-book of Experimental Psychology with Laboratory Exercises*. By Dr. C. S. Myers. Two vols. Second edition. Vol. i., xiv+340 pp.; vol. ii., 107 pp. (Cambridge University Press.) 10s. 6d. net.

Of recent books on this subject none will be read with greater interest and expectation than that which Prof. Welton has recently published (1). Teachers have come to regard him as a very "safe" exponent of educational doctrine, and they know that what he has to say he will say clearly. In this case he set out to write a book which should, at any rate, be free from a reproach which schoolmasters sometimes hurl at psychology, namely, that it treats of things which everybody knows in language which nobody can understand. Although the author has hardly freed himself from all technicalities, he has, at any rate, produced a book which any intelligent reader can follow pleasurably, even without any psychological equipment.

This means, of course, that many difficulties are left unsolved—one would say slurred over had it not been obviously the author's intention to leave them out. There

is no word of recent educational research, for example, and all that that means. The title of the book, indeed, challenges comparison with Prof. Thorndike's "Educational Psychology," and curious readers will understand best what we mean by looking at the two books side by side. Prof. Welton has, we think, been handicapped by a very proper desire to help the practical teacher. He has apparently aimed at little more than making explicit in the mind of the experienced teacher what was implicitly there already. Thus his analyses of many of the school situations are admirable, and will doubtless be helpful to the many "who had felt it all before, but never saw it put like that," as well as to young teachers whose experience is in the making.

Unless one goes to the book with questions on the real difficulties of the competent teacher—e.g., the diagnosis of individual differences—there is no question that its perusal will be at once stimulating and profitable. But to a schoolmaster faced with his intellectual and moral failures and anxious to get light on them, it may prove disappointing. To judge a book by what it does not contain would, of course, be unfair; and we can only repeat that those who are looking for an attractive statement of educational problems from the point of view of genetic psychology cannot do better than read Prof. Welton's book. The rich fruits of the long experience of a man of ripe judgment abound in it. The handsome volume should find a place in every teacher's professional library.

It is hardly designed, however, to fill the gap which undoubtedly exists in the professional literature of training-college students. A good elementary text-book of psychology is a want felt by everybody concerned with the training of teachers. Prof. Pillsbury has made a not unworthy attempt to meet the situation (2); but, from the point of view of this particular need, he has followed too closely the tradition of the psychologist, by giving a relatively large space to the psychology of the special senses and to the neurological bases of the subject. Experience has shown the danger of introducing physiology into elementary psychological text-books. The confusion of nerve and ideational process which results in the average student's mind is almost painful. First learn your psychology, then go to the physiological correlate of mental activity, is, we think, the wiser order.

It is, of course, not quite clear where psychology should come in the course of a training college. Prof. Darroch has not, however, thrown very much new light on the subject in the little volume of addresses (3) which he has just published. It is clear, to our thinking, that a sound elementary knowledge of the principles of the subject is a necessary equipment for every teacher who wishes to follow his profession seriously. The absence of such knowledge brings "child-study" into discredit. Even to read such a book as that of Prof. Claparède (4) without that initial equipment is, to our mind, fraught with danger. Miss Louch and Mr. Holman have been well advised in translating it, nevertheless, although they have, we think, been mistaken in giving precedence to the title "Experimental Pedagogy," as in the narrow sense of that word, at any rate, there is so little pedagogy in it. Of experiment and research into methods of instruction, for example, nothing is said, though the education current in the schools is condemned in no measured terms. The subject of intellectual fatigue is treated with great fulness of knowledge.

A word of welcome should be given to Dr. Myers's "Introduction to Experimental Psychology" (5), which forms one of that admirable series of shilling manuals of science and literature just issued by the Cambridge University Press. His larger work on the subject has already

won its place as a standard English text-book (6). The fact that a new edition has just appeared is a sign of the times. Slowly but surely the experimental study of psychology is winning its way to recognition in this country. Dr. Myers has seized the opportunity which the exhaustion of his first edition brought, to change his publishers. The new form of the book is a great improvement upon the old, and the changes and additions which the author has made are all to the good. When will English teachers begin to equip themselves for the investigational work that lies before them, or at least to see to it that scientific investigation into their problems is encouraged?

THE HISTORY OF CLASSICAL TEACHING.

Studies in the History of Classical Teaching, Irish and Continental. By the Rev. T. Corcoran, S.J. xviii+306 pp. (Dublin: Educational Company of Ireland.) 7s. 6d. net.

THIS book is really two in one: a vindication of the claims of one William Bathe to be a pioneer in education, and an inquiry into classical methods after the Renaissance. The former seems to have suggested the latter. But nobody will trouble long to find fault with the form of the work: he will soon begin to thank Mr. Corcoran for writing it. The book is full of learning, and, besides, contains original matter of importance.

William Bathe (1564-1614) was a Jesuit father who devised a new way of learning Latin. He gathered a list of some 5,000 words, and arranged the whole in 1,141 sentences, such that no word is repeated except those that make the framework of language (*qui, et, est,* and such-like). These sentences were framed so as to convey moral maxims, that is, the subject-matter was moral or religious, not based on the connections of words. In the earlier parts the sentences are also disconnected; later they form paragraphs, or hymns, or essays. These are to be the basis of the work: they are to be learnt, and used; the class-drill does not appear in the book. Bathe also hoped that the same framework might serve in learning other languages—for missionaries and others—for they may just be translated into the new language, and the new sentences learnt as these were. Bathe's book was called "*Ianua Linguarum*," and it was published in Spain in 1611; it was printed in England, Germany, Portugal, and Italy, and went through many editions. Comenius clearly took from it his title of "*Ianua Linguarum Reserata*" (1631), and in his preface he criticises Bathe: his method of arrangement is different, and his vocabulary is larger. Bathe's sentences are very clever, and the book may well have taken twenty years to write; a number of specimens are given in an appendix.

In the essays that follow, Mr. Corcoran takes up in turn composition, reading, grammar, Greek, and the use of the vernacular. He shows that the early teachers desired Latin as a means of expression, taught it for use in all the needs of life, and studied authors primarily for this purpose; they did not respect as we do, he thinks, the subject-matter of the classical literatures, or try to get back into the heart of the ancients. Perhaps it would be more nearly true to say that this was rather for the university, the school having taught the medium: but certainly the theological bent of the times would imply a different view of ancient wisdom. In teaching, they used speech and writing for practice, and cared little for grammar except as an aid to use; they used the vernacular for translation, but as soon as possible they used Latin as the medium for instruction. When Greek was taught, it was

quite secondary to Latin, and it was studied for other reasons than self-expression.

The most important part of his work for the practical teacher is his treatise on composition. He analyses the process of translation to and from a language, and shows that this is a passive process. Since our modern education is almost wholly this, or the gathering of facts from the authors, it is almost wholly passive, which, with the excessive study of grammar, everywhere, except in France, has stunted the mental powers of all pupils. On the other hand, true composition, that is, the use of Latin to reproduce in different forms either one's own thoughts or those of the authors, gives power: the true end of education. This is most abundantly true; and we can only recover it by using in Latin the composition methods of the best modern language teachers, which are part of the direct method. It might be remarked, in passing, that the author finds fault with the direct method in many places, but he does not appear to know that this is not the picking up of a language as a foreigner picks up French in France, but a carefully organised system that includes speech, writing, and reading, the aim being power, as he would wish; nor is the vernacular excluded, but it takes a different place.

Another chapter contains the description of the Jesuit method in the class-room by a careful observer, John Dury, which Mr. Corcoran found in a MS. in the British Museum. It is a valuable novelty, the only thing of its kind, so far as we know, and alone this would make the book worth buying. It is clear that no student of education can afford to do without Mr. Corcoran's book, and we offer our hearty congratulations upon it.

A CYCLOPÆDIA OF EDUCATION.

Cyclopedia of Education. Vol. ii. Edited by Paul Monroe. xi+726 pp. (New York: The Macmillan Company.) 21s. net.

PROF. MONROE and his colleagues are to be congratulated cordially upon the appearance of the second volume of their arduous undertaking. The work, when completed on its present scale, will put English-speaking students of education under a lasting debt of gratitude and obligation; indeed, the whole subject stands to gain enormously by this great co-operative effort.

The new volume is particularly interesting. In the first place, it contains fourteen or fifteen articles from the pen of Prof. Dewey, the most distinguished of American writers on education. Amongst them are valuable critical discussions of the Culture Epoch theory (in which the primacy of the contemporary social life and relations of the child is adequately insisted on), the relation of Environment to Organism, the Meaning of Education, the actual position in regard to Academic Freedom, the educational conception of Experience, and the relation of the educator to the Will that is free. The article on Experimental Schools by Prof. Dewey's leading English exponent, Prof. Findlay, is a little disappointing. It would have been useful to know just what had been the outcome of the various experiments named, and what it was hoped would be the outcome of that interesting school which Prof. Findlay himself controls.

In the second place, English scholarship is well represented in the volume by Prof. Sadler, Mr. A. F. Leach, Mr. de Montmorency, and Prof. Foster Watson. The Vice-Chancellor of the University of Leeds writes with his customary distinction upon French influence in English education, as well as upon the Edgeworths. The short unsigned notice of Thomas Day would, we think, have

been better in his hands. Mr. Leach, writing upon free schools, once again attempts to give the *quietus* to those who claim that the "free" schools of mediæval and renaissance date were only free in the sense that they were not under ecclesiastical control—a plea put forward by Dr. Kennedy, of Shrewsbury, and accepted on his authority by the Public Schools Commission of 1862. The array of evidence which Mr. Leach puts forward is surely convincing enough, as also is his very clear account of the circumstances owing to which Eton, founded by the King in 1440 as a school for twenty-five poor and indigent scholars to learn grammar, without payment of any kind, finally became the exclusive perquisite of the very rich. Mr. Leach also writes the articles on Eton and on Fagging, and he is partly responsible for that on Endowments.

Mr. de Montmorency is, as usual, happy and informing in his treatment of the common law in English education, and under the title "Dormitories" he gives some interesting pictures of the life of public-school boys in the past. In 1839 Frank Buckland wrote, concerning Winchester: "The beds in chambers are, I believe, as old as William of Wykeham himself; they are made of thick oak planks, and there is a hollow for the bedclothes, after the style of the beds for foxhounds in kennels." Ciceronianism and Erasmus could not have been in better hands than those of Prof. Watson, and Prof. Darroch writes with sympathy and knowledge of his own university—Edinburgh.

The articles on Education in England, by an officer of the Washington Bureau of Education, and in France, by Prof. Compayré, are excellent in every way; they both deal adequately and fairly with questions of current controversy. Throughout the volume one is struck by the obvious recency of all articles which touch present-day topics.

It is not possible to do justice to the manifold contents of this great book. That it should succeed in making its way amongst a purchasing public as it deserves is our warm wish. The labour of organisation involved must have been enormous. It is much to be hoped that all who are concerned in the production of the book may reap an adequate reward.

MEMORIES OF ETON.

Floreat Etona: Anecdotes and Memories of Eton College. By R. Nevill. xii+336 pp.; illustrated. (Macmillan.) 15s. net.

A MOST entertaining book indeed. There is no great order in its pages, although the contents are roughly classified into chapters; but we have met with many a more pretentious book that we have yawned over; this we have read. In its historical part there is nothing, probably, that is not to be found in the standard histories of Eton, except the history and picture of the old organ case, which we do not remember to have seen before. Mr. Nevill is properly angry when he speaks of the labours of the mid-Victorian reformers, who tore down the oak panelling of the chapel, destroyed its unique frescoes, and left the organ case lying in pieces about a builder's yard. They were guilty of other horrors also, which are only equalled by those done at Winchester at the same time. As he remarks, it was the shadow of the coming commercial age, which did away with harmless old customs because they were old, and turned Eton into a hothouse for rich young vulgarians; which is also doing its best to banish Greek from our land, as it banished the beautiful

oak from Eton and Winchester chapels. Both are equally useless: what does it matter that both are beautiful? They have not, at least, spoiled the outside of Eton College as they have spoiled the Curfew Tower at Windsor: the college buildings, noble and beautiful, face us on many handsome plates of this volume.

In reading these pages, one is not surprised at the great deeds of Englishmen in all parts of the world. A boy who could live through his schooldays at Eton—and it was much the same elsewhere—must have come out a creature full of courage and resource, strong, and able to bear any hardship. Much of the old brutality we cannot regret; but the hard struggle we must regret. It made men, not whining sentimentalists. If the possible sentimentalists of those days did not survive, so much the better for England. In our author's opinion, which we share, luxury, greed, and softness are no less objectionable than brutality. Shall we ever recur to the old Greek model, which alone has made men brave and cultivated? With the old customs our author describes a number of odd old characters who used to hang about Eton: the Montem poet, the old college policeman, and many another. Masters also come on the scene: Keate, of course, and other lesser lights, notable for their oddities or the pranks of their pupils. The state of discipline at Eton, until the last generation, must have been something appalling; no wonder Keate used the birch freely. But not only under-masters, Keate himself had to fight for his authority by main force amidst a pandemonium of riot. One master let a pupil roll him down the hundred steps, and he was rewarded in after life with ecclesiastical preferment by the grateful lad. Another tale tells of a boy who was to have been flogged, but left without; and finding that this meant expulsion, he followed Dr. Goodford to the Great St. Bernard, and received his punishment before the astonished monks. But we should never have done if we picked out all the good things.

The chapter which will attract most attention is probably that on Montem, which is fully described, with several plates to illustrate it. The railways put an end to Montem: but all readers will share Mr. Nevill's regret that it was not kept in some modified form, not so much open to abuse. Still, it would have been a pity if the old freedom had given place to organised money-grubbing, like that which is seen at Ditton corner when the May races are on. The account of the games is long, but not nearly so interesting. What most will surprise the uninitiated reader is the tone of the author's remarks on work. He seems to take it for granted that Eton will never care for intellectual work: the best Etonians will be, as they have been, brilliant enough, but the rank and file give it a very small place in their occupations. Nevertheless, all will understand the Etonian's pride in his ancient school, with its roots deep in English history.

EARLY CHRISTIAN BIOGRAPHY.

A Dictionary of Christian Biography and Literature to the End of the Sixth Century A.D., with an Account of the Principal Sects and Heresies. Edited by Henry Wace and William C. Piercy. xi+1028 pp. (Murray.) 21s. net.

IN compressing into a single volume the more essential parts of the four large volumes issued some twenty years ago, the publisher and editors of the above work have indeed rendered to a wider circle the service they desired. Though most of the material is taken over from the earlier work, it retains its freshness unimpaired, and the book in its present form will make a welcome addition to the

school library. After a careful survey of it from cover to cover, we can endorse without reserve the belief of the editors that the reader is here placed in possession of "the most valuable and the most interesting series of monographs on the chief characters and incidents of early Church history ever contributed to a single undertaking by a band of Christian scholars."

We have not turned many pages before we come to the beautiful life of "Ambrose," portrayed with great felicity by Dr. J. Ll. Davies. Soon we are captivated by the successive scenes, with their alternate light and shade, of the life of the great "Athanasius," so sympathetically and powerfully drawn by the late Canon Bright. How we stand in awe before this wonderful embodiment of patience, fidelity, and diligence! Whether from a throne or a cave, the annual Festal Letter is always forthcoming. A life of "continual martyrdom" indeed! Then we come to the comprehensive "Augustine" of the Bishop of Exeter (Dr. Robertson). We are now in the full wealth of the feast: the late Dr. Hort's fine "Basilides," the late Canon Venables's "Basil the Great," the late Bishop Stubbs's "Venerable Bede," the late Archbishop Benson's authoritative "Cyprian," the late Bishop Wordsworth's "Constantine" and his fascinating and discriminating "Julian the Apostate," the late Canon Bright's "Cyril," the late Rev. J. Barmby's "Gregory the Great," the late Dr. Lipsius's (Jena) "Irenaeus," Canon Scott Holland's "Justin Martyr," Bishop Gore's "Leo the Great," Mr. Lias's interesting accounts of "Monophysitism" and "Nestorius and the Nestorians," Mr. Wigram's "Nestorian Church," the late Bishop Westcott's exquisite "Origen," Dr. Lock's "Pelagianism and Pelagius." Without exception, the most painstaking scholarship and research have gone to the make-up of these and other equally faithful, if not equally prominent, vignettes.

The volume is much too interesting to be shelved for reference alone. The reader is swiftly immersed in the militant history of those pregnant first six centuries, with their rival religions, conflicting creeds, persecutions from without, heresy-hunts from within; he stands breathless before the savagery with which pagan and Christian, Catholic and heretic, fought for their opinions. Here we have not only the touching stories of many of the martyrs, but portraits of the persecuting emperors, from the infamous Nero to the less culpable Diocletian, including the philosophic Marcus Aurelius who compassed Justin Martyr's death. Here, too, we have the fearful clashings within the Church, Athanasius against Arius, Cyril against Nestorius, and all the fierce and endless rivalries for place and power between bishops, patriarchs, and other dignitaries. Even when we witness the fall of an ecclesiastical tyrant like Dioscorus, with his famous and final "What I have said I have said," we cannot cease to admire his ability and originality.

But if the conflict of Christians is no longer of the old sanguinary order, the struggle for unity of belief goes on, as this volume internally testifies; for though the contributors are almost without exception Anglicans, and most of them clergymen, differences of belief persist, and in nothing, perhaps, is this brought out more notably than in their attitude towards the miracles of the early Church. While Dr. Davies describes as "childish" the miracles alleged to have taken place at the death of Ambrose, Dr. Wordsworth talks of the miracles associated with "Apollinaris (St. and Martyr)" as though they undoubtedly took place, while he accepts explicitly with Newman the miraculous appearance of the Cross to Constantine. And it is curious that Mr. Lias speaks of the sudden death of Arius as "a Divine interposition" to rid

Christendom of a dangerous heresiarch at a critical moment. Considering that Arius was probably eighty-six or eighty-seven at the time—A.D. 336 (he was described as an old man at the Council of Nicea in 325, and is thought to have been born in 250)—the suggestion that his death was anything but natural is rather surprising.

Scholarly and generally judicial as are the contributors, we think they might have been drawn from a wider field. Up to a point it is advisable that ecclesiastical matters should be ecclesiastically treated; but there is room in such a work as this for the general historian, and, so far as clerics are concerned, there is an ever-increasing body of Protestant scholars outside the Anglican pale. Some concessions to the average reader might also be made with advantage, such as the insertion of the name "Jerome" with a reference to Hieronymus, as not everyone who consults this book will recognise the name of the distinguished author of the Vulgate in any but its anglicised form. For the same reason, under "Athanasius" it might be noted that the so-called Athanasian Creed was not the work of Athanasius, being unknown to the Church until 500 years after his death. Again, the external title of a book of reference should be absolutely unequivocal. When we took up Mr. Murray's "Dictionary of Christian Biography" we at once turned to "St. Catherine of Siena." The name was not to be found. We next turned to "St. Thomas of Canterbury," and, when the result proved the same, it became obvious there was a subtitle, to which we turned. The insertion of the word "Early" at the beginning, or of "To 600 A.D." at the end, of the title, would obviate such a fruitless quest.

An invaluable addition to a reissue would be a map of the Roman Empire under Constantine.

RECENT SCHOOL BOOKS AND APPARATUS.

Modern Languages.

Arnold's Modern German Course. By F. W. Wilson. viii+271 pp. (Arnold.) 3s. 6d.—It is unnecessary to say much about this book, because in all essentials it follows the model of Mr. Siepmann's well-known "Public School German Primer." The exercises, it is true, contain more applied grammar than in the older book. The chief defect is the very large number of different words in the small amount of text. If our calculation is correct, the text contains some 8,500 words, and the German-English vocabulary about 2,300 entries. The mistake of crowding new words together in the text, and not allowing for sufficient repetition to make the words a real possession, is a fault sufficiently common in recent first courses to deserve mention.

Deux Comédies Infantines. Par M. Reichenbach. iv+56 pp. (Harrap.) 6d.—The two plays are "Le Petit Chaperon Rouge," in five scenes, and "Jean et Marguerite," in four scenes, which is our old friend "Hänsel und Gretel" in French garb. There are some exercises on the text, partly consisting of translation, and a vocabulary which gives the less familiar words in the order of the text. The music of the songs, by Horace Mansion, is also supplied.

Classics.

A History of the Ancient World. By G. W. Botsford. With maps and numerous illustrations. xviii+588 pp. (New York: The Macmillan Co.) 6s. 6d. net.—A history of the world in a small volume is a bold thing to attempt; but if anyone can do it, Mr. Botsford can. He has the art

of telling a history well in a small space, so as to bring out its points, and to carry the reader with him: witness his excellent "A History of Rome"! It is very desirable that all students should at some time get a glimpse of the world history. We are so apt to think that Europe is everything, and Mr. Botsford's compatriots that the United States are the universe; and if only some sixty pages can be spared for Oriental nations, yet henceforth Egypt and Assyria will not be mere names. The rest of the book is Hellas and Rome in about equal portions. We congratulate Mr. Botsford on a success: on his history, and its pictures, and in fact everything except the heavy paper on which it is printed.

The Empires of the Old World, to the Fall of Rome. By M. Bramston. viii+292 pp. (Blackie.) 3s. 6d.—We have just laid down Mr. Botsford's history of the world, and, lo and behold, here is another, in half the space! But the two do not deal with their subjects in the same way. The story here is told not so much in sections as in a stream: the history takes up each nation as it comes into the stream. Thus we begin with prehistoric man; pass by early Egypt and Babylonia, to the Egyptian Empire, Greece, Israel, Greece, Rome, and the rise of the Eastern Empire. As Israel and Rome come in, something is said of their past. The writer takes a special interest in religion. There are some good pictures, and illustrative readings are appended to the chapters. At the end are chronological charts. This is a useful and attractive book.

Homer Iliad, XIII. and XIV. Translated by E. H. Blakeney. 62 pp. (Bell.) 1s.—We have already reviewed the earlier books of this translation, and we see no reason to change our opinion. The style is that of Butcher and Lang. Mr. Blakeney's sense is generally clear, if his words are often odd; but not clear is the difficult passage xiii, 71, "easily did I mark the motions of his feet behind"—was he kicking? When he goes on, "eager are my feet beneath and my hands above," he uses a Greek idiom in English, but it is to our ears rather grotesque. How, again, did Aias's hands "play eagerly about my spear"? The rendering of 114, "let us heal the breach," is certainly right in the main, one would think, though other versions are favoured elsewhere. It is in idiom that the translation most needs revising. Besides the examples quoted, take xiv, 86, "to wind up grievous wars" (τολυπέειν): no English reader would ever think of a ball of wool, still less of what the Greek really means, to do a weary task. There are a number of notes, partly explanatory, but mostly parallel quotations.

Latin Translation for Public-school Scholarships. By B. Dalton. xxviii+226 pp. (Macmillan.) 2s. 6d.—This book contains 200 passages, each of which has been set in a scholarship examination. There are about 80 pp. of notes, and an introduction on translating. The introduction gives some useful hints, chief of which is "Never Write Nonsense." It is not part of the compiler's duty to ask, Why do schoolboys write nonsense? A correct psychological answer to this question might show why Mr. Dalton's book ought not to be necessary: but that we leave; if it is necessary, it is well done. Truth to say, these hints are too much for the boy who will use this book. They are for his teacher, who must introduce them to him one by one. May we enter our protest, however, against the style of English which is set up for a model on p. xx? It is true the phrases are taken from Bradley's Aids; but they are stilted and vague in the daily Press fashion. Great is simplicity! but not much respected in our schools. "A ceremony always conducted with impres-

sive solemnity," is given in the notes (p. 214). These contain a great deal of useful matter with a good deal of translation, too much for teaching purposes, but not for those who work by themselves.

Cicero's Letters: a Selection. By S. E. Winbolt. xii+84 pp. Illustrated. With vocabulary. (Bell's Simplified Classics.) 1s. 6d.—This book lends itself better to the method of printing sentences as paragraphs: a letter is more scrappy than a history. For the rest, the plan is the same as that already described, and open to the same remarks. No one could make a dull book of Cicero's letters; but we confess that when much abbreviated they lose their special charm of naturalness.

English.

A Shakespeare Glossary. By C. T. Onions. xii+259 pp. (Clarendon Press.) 2s. 6d. net.—Mr. Onions has for the last fifteen years been on the staff of the Oxford English Dictionary, and is therefore a highly trained lexicographer. Having said so much, we need scarcely add that the present work is far more than a transference from the pages of the great dictionary. In very many cases Mr. Onions here offers entirely fresh information, and not seldom makes happy suggestions which throw new light upon a textual question or an interpretation. These supplementary labours to the dictionary are a splendid commentary upon its greatness; we hope that the delegates will arrange for more of them, and that they will entrust them to such trustworthy scholars as Mr. Onions.

A Book of English Prose, 1470-1900. Selected by J. H. Fowler. xvii+226 pp. (Macmillan.) 3s. 6d.—We hope that Mr. Fowler will forgive us for saying that we are more concerned for the moment with his preface than with his selections. That preface strikes a note that we would fain hear trumpeted throughout the schools of England. It is high time that the glorious heritage of English prose style should come to English boys and girls in virtue of its own beauties, and not vicariously for alien ends. English prose is so rich, so subtle, so various, that we care not at all whether Mr. Fowler has omitted this gem or that; we are only grateful to him for including such jewels of form and thought as sparkle here. A great part of education among some ancient peoples consisted in learning national epics by heart; the modern youth, who should learn by heart a goodly portion of these selections, would be gaining a far better education than our present jumble of a curriculum often allows. Mr. Fowler has shown the soundest judgment and taste in his choice; we hope—so fully do we believe in the principle it illustrates—that his book will sell by the hundred thousand.

How to Learn English. A Reader for Foreigners. By A. Prior and A. Ryan. viii+257 pp. (New York: The Macmillan Company.) 2s. 6d. net.—This book has two objects: first to teach the foreigner the language and secondly to imbue him with the civilisation of America. We are glad to find the authors insisting on the necessity for some preliminary drill. The main scheme of the book is to provide a series of interesting topics for reading or conversation, always, of course, having in view the second of the two objects mentioned above. For the use of adult foreigners we think the method very suitable; only, as in the case of most methods, a great deal will depend upon the skill of the teacher. The pictures are good, and should certainly prove very useful. We notice that the questions appended to each lesson are provided in every case with the greater part of the answer, the reason being that the

arrangement of words in English differs from that in other languages. We do not quite admit the necessity of the course adopted.

Science and Technology.

Engines and Boilers Practically Considered: a Handbook for Young Engineers on the Construction and Working of Steam, Gas, Oil, and Petrol Engines, and Steam Boilers. By W. McQuade. xv+87 pp. (Bell.) 3s. 6d. net.—This little book does not profess to be an exhaustive examination of the subject, but an introduction to the more advanced works. It is almost entirely of a descriptive character, and contains sections dealing with the steam engine, steam boilers, and internal-combustion engines. There are more than sixty illustrations, many of these being good and representative of modern practice. A few have no reference letters, an assistance which most students expect, and some others are defective in design. There are also cases where additional views would be advantageous; for example, the double ported slide valve shown on p. 18 would be more readily understood had a cross-section been given. Again, a drawing on p. 23 professing to explain Stephenson's reversing link motion shows the link and the ends of the eccentric rods and valve rod only. A simple outline diagram of the complete gear would be a useful addition. There is a good set of drawings of a Crossley gas engine included; this set might well have served as a model for some additional illustrations in the section dealing with the steam engine. We have looked in vain for a line drawing, either sectional or in elevation, of a complete steam engine. The only illustration of a complete steam engine is given in the form of a photograph of a set of triple-expansion engines in the frontispiece, an engine which we find is described in one page of text.

Industrial Drawing and Geometry. By Henry J. Spooner. xiii+169 pp. (Longmans.) 2s. 6d.—In this book the author has endeavoured to combine the principles of practical geometry with drawing of a more technical character in a comprehensive form suitable for beginners. Drawing materials, instruments, and their uses are described, and in some cases the methods of employing them illustrated by photographs. The elementary principles of plane and solid geometry are treated exceptionally well, and, in illustration of these, examples are given relating to the work of the architect, bricklayer, carpenter, engineer, &c. The diagrams included number six hundred, and are well drawn and clearly reproduced. We note also that very few of the examples selected are of such a nature as to demand complicated explanation to the young student. The book will form an excellent first year's course in drawing for technical and science students. The advantages of teaching geometry and drawing of a technical kind side by side are well known to experienced teachers; many such may revive the practice of doing so in view of the greater latitude allowed by the altered arrangements of the Board of Education in the elementary stages. Mr. Spooner's book can be recommended for this purpose as being likely to instil sound views of the subjects treated.

Mechanics and some of its Mysteries. By V. E. Johnson. 120 pp. (Henry Frowde, Hodder and Stoughton.) 1s. 6d.

Flying and some of its Mysteries. By V. E. Johnson. 138 pp. (Henry Frowde, Hodder and Stoughton.) 1s. 6d.

The author's aim in each of these little books has been to provide boys with material for intelligent amusement, in the course of which they will bring into play qualities that will serve them well in matters of greater importance.

Both books contain a considerable amount of scientific information, conveyed usually by means of simple experiments involving apparatus which can be put together easily by boys. That the style of writing is clear, and is interesting not merely to adults, but also to boys, we have tested practically. In the book dealing with mechanics the young reader will find sections dealing with spinning tops, gyroscopes, boomerangs, and designographs. The latter section is specially good, and includes some coloured designs. In the book on flying, model balloons and dirigibles, kites and aeroplanes, are described, together with full instructions for making models and for carrying out useful and instructive experiments. Both books can be thoroughly recommended as being amongst the best of play-books for boys.

A Laboratory Note-book of Physics. By S. A. McDowall. Parts I. and II. (Dent.) 2s. 6d. net each.—In teaching practical chemistry and physics at Wellington College, the method adopted hitherto has been to give each student a printed slip describing the next experiment to be performed, and containing certain questions designed to test whether the experiment had been understood. These slips were pasted into a note-book, and full supplementary descriptions, with diagrams, graphs, answers to the questions, and experimental results were entered by the student. The present note-book is a development of this system. In Part I. light, heat, magnetism, and electricity are dealt with, together with a short revision on measurement and hydrostatics. Part II. contains more advanced work on the same subjects, omitting hydrostatics. Mechanics and sound are not dealt with. While there is always the danger of the work done by students using such note-books becoming mechanical, yet in laboratories where the supply of apparatus is limited teachers of large classes are justified in adopting a method which, in careful hands, is capable of being made efficient. In the case of very inexperienced students it cannot be expected that the note-book when finished will have much permanent value unless a duplicate copy is supplied for the rewriting of unsatisfactory notes. The series of experiments is well selected, and the necessary apparatus is of a simple character.

Senior Chemistry. By G. H. Bailey and H. W. Bausor. 509 pp. (Clive.) 4s. 6d.—This volume is based on Bailey's "Tutorial Chemistry," but extensive changes have been made as regards both the contents and method of treatment. A prominent feature of the book is the number of experiments interspersed throughout the descriptive text. It is intended that the student should perform these himself. The treatment is a little unequal. Important topics are omitted, while others of much less significance are discussed at length. Thus there is nothing more than the merest reference to liquid air, and none to the modern methods of liquefying gases. Again, Dumas's method of determining vapour density is described in detail, whilst there is no discussion of the osmotic methods for finding the molecular weights of dissolved substances. A useful section on chemical calculations is included in the book.

An Introductory Course of Mechanics and Physics for Technical Students. By W. M. Hooton and A. Mathias. vii+148 pp. (Clive.) 1s. 6d.—The subjects usually studied in the first two years' work in physics are here treated in a thoroughly experimental manner. The explanatory theoretical matter is reduced to a minimum, and the pupil is expected to look to his teacher for further theory after the experiments have been performed. The language is simple and the arrangement clear.

Plant Animals. By F. Keeble. x+163 pp. (Cambridge University Press.) 1s. net.—Prof. Keeble's "Study in Symbiosis" (the sub-title of the book) is an interesting and instructive essay on the life-histories and habits of two simple marine worms. The special significance of these tiny creatures is that, when adult, each is a complex of two organisms—one the colourless animal, the other a microscopic green, yellow, or brown plant. This curious partnership and its consequences form the subject of the book. The question—there is more in it than meets the eye—is discussed in a manner which makes altogether delightful reading. The research is an admirable example of pure scientific method, and as such is worth the attention even of people whose tastes are not biological.

Practical Plant Physiology. By F. Keeble, assisted by M. C. Rayner. xvi+250 pp. (Bell.) 3s. 6d.—The course of work prescribed in this book is suitable for higher classes in schools and for first-year university students. Prof. Keeble assumes that the pupil has had some previous training in elementary physics and chemistry, and is therefore in a position to begin at once the investigation of the problems of growth, nutrition, irritability, and the like. Many of the experiments described are new, but the chief value of the book lies in the manner in which the results obtained are discussed and interpreted. The student working through the course will obtain a solid grounding in the physiology of plants, but he will also undergo a training in scientific method which will be of immeasurably greater value.

Botany for High Schools. By G. F. Atkinson. xv+493 pp. (Bell.) 4s. 6d. net.—Clearly written and lavishly illustrated, this book is an example of the best type of American text-book of botany. It does not assume any previous training in science, but nevertheless covers a wide field, nearly one-third of the book being concerned with cryptogams. Of special interest are the concluding seven chapters, which deal with plant ecology and kindred subjects.

The Liverworts, British and Foreign. By Sir Edward Fry and Agnes Fry. viii+74 pp. (Wetherby.) 2s. 6d. net.—To the reader who has been well drilled in the comparative morphology of plants, this little book will prove interesting in many ways. Others may easily be misled by some of the speculations put forward in it. It is obvious (to mention one example only) that confusion of thought is inevitable in any attempt to homologise tissues of the so-called leaves of Bryophyta with anything in the leaves of the higher plants.

The British Journal Photographic Almanac, and Photographer's Daily Companion, 1912. Edited by G. E. Brown. 1436 pp. (Greenwood.) 1s. 6d. net.—The revisions in the present issue have been designed so as to make the volume as complete a book of reference as possible, and both the beginner and the adept will find in its pages full instructions for all the various processes of photography. A section on "How to do it" conveys pictorially, by means of 120 small sketches, much information on the handling of cameras and on dark-room manipulation. The lengthy article on lantern-slide making, by the editor, is in itself a complete handbook, and Mr. C. H. Hewitt's illustrated article on "Indoor and Outdoor At Home Portraiture" gives much assistance in a difficult branch of work. The sections on the progress of the year, new apparatus, and the tables—chemical, exposure, and optical—all help to make the information complete. Bound in the same volume are the trade-lists of the leading manufacturers and dealers.

Miscellaneous.

Musical Composition: a Short Treatise for Students. By Charles Villiers Stanford. viii+193 pp. (Macmillan and Stainer and Bell.) 3s. 6d. net.—A treatise on musical composition by so eminent a teacher and composer as Sir Charles Villiers Stanford will eagerly be sought by earnest musical students. It may at once be said that this is an attractive, readable, and instructive book. After an introductory chapter the author goes on to technique. He is of opinion, and rightly so, that counterpoint should be studied before harmony, and "through counterpoint to master harmony." Instructive chapters follow on rhythm, melodies and their simple treatment, the complex treatment of melodies, variations, form, colour, treatment of voices, extraneous influences in instrumental music, danger signals, all of which are treated in a masterly way. This treatise may be confidently recommended to students of musical composition. The book forms vol. i. of The Musician's Library, now in course of preparation.

The Theory of Music for Student Teachers. By James Rodger. (Curwen.) 2s. 6d.—This excellent treatise may be recommended to the student teacher. It is clearly written, and treats fully the many details which come under the title of "Theory of Music." A full explanation is given of the staff notation; "but it founds directly on the students' practical sol-fa knowledge, and explains the theory of music in the first instance from the sol-fa point of view." Examples throughout are given in the old notation and sol-fa. Particular mention must be made of the paragraphs on the teaching of tune, ear training, the rhythm of verse and prose, transition, &c. Section IV., on style and execution, is interesting and instructive, and includes such important matters as expression, voice cultivation, the teaching of a school song, and the teaching of part-singing. The book concludes with some well-devised exercises and Board of Education examination papers.

The Keyboard Explained. With some Account of a System of "Tonic" Notation and other Matters. By Immo S. Allen. (Kegan Paul.) 6d. net.—The author repeats some well-worn facts relating, among other subjects, to the keyboard, modes, intervals, common chords, mean-tone temperament, and equal temperament. Then follows an original plea for a new musical notation, which can never, in our opinion, supplant the familiar and convenient old notation, which has served the great masters of the past, and continues to serve the composers of the present day. Appendix A is entitled "An Harmonic Wheel." Appendix B contains a suggested reform in the arrangement of the keyboard. Appendix C is a short and original chapter entitled "Inverted Music."

The Singing Circle. A Picture Book of Action Songs, other Songs, and Dances. Collected and arranged by Lady Bell. Illustrated by Hilda Broughton. (Longmans.) 3s. 6d. net.—An interesting book of action songs for young people, excellently illustrated. The little songs might have been more fully harmonised, consisting as they do, for the most part, of a treble and bass. Apart from this we have nothing but praise for the arrangement of the book, its contents, and the actions. The volume is intended for children from infancy to "the comparative maturity of teens." The first section, entitled "Action Songs, First Series," contains easy and familiar songs. The second section, "Action Songs, Second Series," contains songs a little more advanced, but suitable for children who can imitate their elders. A series of songs follows intended to be sung by mothers and nurses to young children. The

last portion consists of songs without actions, and includes a selection from Stevenson's "Child's Garden of Verses." The tunes attached to the words are bright and easy. Numerous directions and diagrams are given for the effective performance of the actions. This handsome volume cannot fail to instruct and delight the children.

Dramatised History. By Mrs. Basil Gothorp. Book I. Period 55 B.C.—1066 A.D. 64 pp. (Cassell.) 4d. net.—By means of this book the child will not only learn the facts of history, but afterwards be given a part to act, a method of teaching likely to induce an intelligent interest in the subject, whilst cultivating the imagination. This book is the first of a series which is to consist of five volumes.

Easy Games for Little Players. A Collection of Dramatised Nursery Rhymes. By Margaret Boughton. 42 pp. (Charles and Dible.) 1s. net.—This volume should prove a substantial help to teachers wishing to organise games other than those of the kindergarten. The little ones will love to play at being such old favourites as the "Snow Queen," "Cinderella," and so on, and, at the same time, they will lay a foundation for dramatic work at a more advanced age.

Standard Plays for Amateur Performance in Girls' Schools. Comus. Three Scenes. Arranged by Lucy Chater. 32 pp. (Allen.) 6d. net.—Miss Lucy Chater has proved herself a skilful adaptor in her dramatised edition of Charles Kingsley's "Water Babies," and "Comus" still further upholds her reputation. The directions are plain and concise, and the action of the piece is clear throughout.

Pitman's Dramatic Readers. Junior Book for Standards I. and II. 55 pp. Intermediate Book for Standards III. and IV. 62 pp. By Alice May. (Pitman.) 5d. net.—These books not only aim at an improvement in facility in reading, but at the inculcation of a good style of reading aloud. The lessons form short plays, with parts for each child, and comprise adaptations from Hans Andersen and other well-known stories. The series is well and effectively illustrated.

EDUCATIONAL BOOKS PUBLISHED DURING JANUARY, 1912.

(Compiled from information provided by the Publishers.)

Modern Languages.

"Civil Service Examination Papers." Edited by H. N. Adair. Vol. i. "French Composition." Edited, with Notes, by H. N. Adair. vi+126 pp. (Bell.) 1s. 6d.

Alexandre Dumas, "Napoléon à l'île d'Elbe." Edited by Clémence Saunois. (Blackie's Little French Classics.) 40 pp. 4d. "Le Petit Bonhomme." Adapted by E. Magee. (Petits Contes pour les Enfants.) 48 pp. (Blackie.) 4d. "L'Oie Dorée." Conte de Fée. Adapted by E. Magee. (Petits Contes pour les Enfants.) 48 pp. (Blackie.) 4d.

Gotthold Ephraim Lessing, "Nathan der Weise: Ein dramatisches Gedicht." Edited by J. G. Robertson. iii+278 pp. (Cambridge University Press.) 3s. 6d.

"A First German Book on the Direct Method." By G. T. Ungoed. viii+178 pp. (Cambridge University Press.) 2s. 6d.

"Senior French Reader." By R. F. James. 344 pp. (Clive.) 2s. 6d.

Montaigne, "Essais I." M^{me}. de Stael, "Dix Années d'Exil." Chateaubriand, "Œuvres I. et II."

"Les Meilleures Chansons Françaises du XV au XX Siècle." (Série Tous les Chefs-d'Œuvre de la Littérature Française.) (Dent.) 1s. net each.

"Studies in German Words and their Uses." By F. E. Hastings. 263 pp. (Heath.) 2s. 6d.

"Trente et Quarante." By Edmond About. Edited, with Notes, Exercises, and Vocabulary, by T. H. Bertenshaw. (Longmans.) Pupil's Edition, 1s.; Teacher's Edition, 1s. 3d.

Jean Macé, "La Vache Enragée." (Siepmann's Primary French Series.) Adapted and edited by the Rev. E. H. Arkwright. 92 pp. (Macmillan.) 1s.

"Noiraud, Guignol et Deux Cyclones." By Ludovic Halévy. (Lectures Scolaires. Edited by W. M. Poole and E. L. Lassimonne.) 96 pp. (Murray.) 1s. 6d.

"French Prose Writers of the Nineteenth Century and After." By Victor Leuliette. 352 pp. (Pitman.) 3s. net.

"Geleite die draussen sind!" By Zedelius. Forming a new volume of "Rivington's Direct Method Easy German Texts." Edited by D. L. Savory. 128 pp. (Rivington.) 1s. 6d.

Classics.

"Mirabilia: a Short Collection of Modern Stories in Latin." By C. D. Olive. viii+118 pp. (Edward Arnold.) 1s. 6d., with or without Vocabulary.

"Isidori Hispalensis Episcopi Etymologiarum sive Originum Libri XX." (Oxford Classical Texts.) Edited by W. M. Lindsay. I., 672 pp. II., 576 pp. (Clarendon Press.) Two vols., 9s. each in paper covers, 10s. each in cloth.

"Novum Testamentum Latine." Edited by J. Wordsworth and H. J. White. 620 pp. (Clarendon Press.) 2s. net; on Oxford India paper, 3s. net.

"Platonis Opera." Vol. iii. Fascicle ii., containing the Sixth Tetralogy (Euthydemus, Protagoras, Gorgias, Meno). Edited by J. Burnet. 307 pp. (Clarendon Press.) 3s. 6d. in paper covers, 4s. in cloth.

"Thucydides." Book IV. Edited by A. W. Spratt. xx+448 pp. (Cambridge University Press.) 6s.

"Senior Latin Course." By A. J. F. Collins and A. Robinson. 352 pp. (Clive.) 3s. 6d.

"The Roman Conquest of Britain." A Fourth Form Reading Book adapted from the Text of Tacitus. With Map, Introduction, Notes, and Vocabulary. By William Modlen. (Elementary Classics.) 140 pp. (Macmillan.) 1s. 6d.

English: Grammar, Composition, Literature.

"Advanced English Grammar through Composition." By John D. Rose. xiv+232 pp. (Bell.) 2s. 6d.

"Browning's Shorter Poems." With an Introduction by Edith B. Fry. (Plain-text Poets.) 128 pp. (Blackie.) 6d.

"Sheridan's Rivals" and "The School for Scandal." With an Introduction by John Peile. (Plain-text Plays.) 112 pp. (Blackie.) 6d.

"English Exercises for Intermediate Classes." By Elizabeth B. Bruce. 64 pp. (Blackie.) 8d.

"The Model Classbooks of English. A Complete Preliminary Course in Composition, Word-building, Phrase-making, Spelling, Grammar, and Analysis." By F. W. Chambers and A. J. Ker. Scholars II., 48 pp.; Scholars III., 48 pp.; Teachers II., 112 pp.; Teachers III., 96 pp. Book II., 3d.; Book III., 3d. Companion Teachers' Books, 1s. each.

Boswell's "The Journal of a Tour to the Hebrides with Samuel Johnson, LL.D." With an Introduction by Dr.

W. H. D. Rouse. (Blackie's English Texts.) 128 pp. (Blackie.) 6d.

"English Composition." Part i.: Uses of Words, Figures of Speech, Sentence and Paragraph Construction, Punctuation. Part ii.: Essay, Paraphrase, Précis, Style, Prosody, Kinds of Literature. By Wm. Murison. Part i., x+228 pp. Part ii., viii+186 pp. (Cambridge University Press.) 2s. 6d. each.

"Nineteenth Century Essays." By George Sampson. xii+228 pp. (Cambridge University Press.) 2s.

"Victoria, the Good Queen." (Brief Biographies of the Good and Great.) By Reginald Horsley. 112 pp. (Chambers.) Paper, 5d.; cloth boards, 6d.

Shakespeare, "Hamlet," "Coriolanus," and "Twelfth Night." With Introductions and Notes by G. S. Gordon. In one vol. 492 pp. (Clarendon Press.) 2s. 6d.

Dickens, "Pickwick Papers." Abridged, with Introduction, by Russell Scott. With Glossary by Philip T. Stephenson. 685 pp. (Clarendon Press.) 2s. 6d.

"England' Poetry Books." Second series. In three parts: Junior, Intermediate, and Senior Books. Edited by W. J. Glover. 64 pp. each. (Davis and Moughton.) Paper, 3d. net; cloth covers, 4d. net.

"The Teaching of English Analysis." By E. M. Dobbs. 64 pp. (Dent.) 1s. net.

"Milton and his Poetry." By W. H. Hudson. 184 pp. (Harrap.) 1s.

"Spenser and his Poetry." By S. E. Winbolt. 160 pp. (Harrap.) 10d.

Washington Irving, "The Sketch Book." (Pocket Series of English Classics, with Notes and Introduction.) 397 pp. (Macmillan.) 1s. net.

The Tudor Shakespeare: "The Merchant of Venice." Edited by H. M. Ayres. 150 pp. "Macbeth." Edited by A. C. L. Brown. 154 pp. "Henry IV." First part. Edited by F. W. Chandler. 185 pp. "Henry VI." First part. Edited by L. Pound. 160 pp. (Macmillan.) 1s. net each.

"Key to Easy Parsing and Analysis." By J. C. Nesfield. 62 pp. (Macmillan.) 2s. net.

"Dramatic Reader." By Alice May. Junior, 56 pp. Intermediate, 64 pp. (Pitman.) 5d. net each.

History.

"The Groundwork of British History." By George Townsend Warner and C. H. K. Marten. (Blackie.) Complete. 764 pp. 6s. In two parts: Part i., to 1603. 348 pp. 3s. 6d. Part ii., since 1603. 421 pp. 3s. 6d.

"Student's History of England and Great Britain." By W. J. Bees and Johnson Fenwick. Edited by D. Patrick and W. Woodburn. 772 pp. (Chambers.) 4s. 6d. Also separately: Part i., 55 B.C. to 1485 A.D., 352 pp., 2s. 6d. Part ii., 1485-1910, 416 pp., 2s. 6d. Section i., 1066-1485, 240 pp., 2s. Section ii., 1485-1714, 268 pp., 2s. Section iii., 1688-1910, 208 pp., 2s.

"Historical Portraits." The Lives by C. R. L. Fletcher and H. B. Butler. The Portraits chosen by Emery Walker. Vol. ii., 1600-1700, with Introduction by C. F. Bell. 328 pp. (Clarendon Press.) 10s. 6d. net; separately, the Portraits, in envelope, 6s. net; prices for framed sets on application.

"The Story of England." For Junior Forms. From the earliest times to the death of Queen Victoria. By M. O. Davis. 320 pp.; with fifteen coloured maps. (Clarendon Press.) 3s. Separately: Part i., to the death of Elizabeth; Part ii., to the death of Victoria, 1s. 9d. each.

"Bucks Biographies." By Lady Verney. 256 pp.; illustrated. (Clarendon Press.) 2s. 6d. net.

"The Tree-dwellers: the Age of Fear." (The Industrial and Social History Series.) By Katharine E. Dopp. 128 pp. (Harrap.) 1s.

"The Making of Western Europe. Being an Attempt to Trace the Fortunes of the Children of the Roman Empire. I. The Dark Ages, 300-1000 A.D." By C. R. L. Fletcher. 424 pp. (Murray.) 7s. 6d. net.

"Dramatised History." By David Jones. Junior Book. 96 pp. 7d. net. Intermediate Book. 116 pp. 8d. net. (Pitman.)

"Handbook to the 'Tower' 'Children of History.'" By M. Hancock. 40 pp. (Pitman.) 3d. net.

Geography.

Cambridge County Geographies: (1) "Northamptonshire." By M. W. Brown. xii+216 pp. (2) "Buckinghamshire." By Dr. A. Morley Davies. xii+224 pp. (3) "Midlothian." By Alex. McCallum. x+208 pp. (Cambridge University Press.) 1s. 6d. each.

"The Oxford Charts and Outline Maps." Edited by A. J. Herbertson. World: Mollweide's Elliptical Equal Area Net; Polar Hemispheres; Western and Eastern Hemispheres. Western Europe: Outlines for Weather Map. British Isles: Outlines for Climate Map. Contour Map Exercise (devised by Dr. H. R. Mill). Weather Chart (devised by J. F. Unstead). (Clarendon Press.) 1d. net each; 9d. net for twelve of one kind; 1s. 4d. net for twenty-five of one kind.

"Geographical Exercise Book—The World." Forty whole-page maps, three double-page maps, and ten pages of squared paper. (W. and A. K. Johnston.) 4d. net.

"A Geography of the World." (Macmillan's Practical Modern Geographies.) By B. C. Wallis. 388 pp. (Macmillan.) 3s. 6d.

"Europa's Childhood and Growth." By A. J. Berry. 282 pp. (Pitman.) 2s.

Mathematics.

"A New Geometry. Books I.-III. By W. M. Baker and A. A. Bourne. xxii+125 pp. (Bell.) 1s. 6d.

"Geometry for Schools. By W. G. Borchardt and the Rev. A. D. Perrott. Book III. viii+71 pp. 1s. 6d. Books I.-III. xi+240 pp. 2s. 6d. (Bell.)

"An Introduction to the Use of Common Logarithms." By James Rodger. 40 pp. (Blackie.) 1s.

"Blackie's Experimental Arithmetics. Constructive and Generalised." By Bertram A. Tomes. Book I.: Paper, 32 pp., 1d.; cloth, 32 pp., 2d.; Teacher's Guide, 64 pp., 1s. Book II.: Paper, 32 pp., 1d.; cloth, 32 pp., 2d.; Teacher's Guide, 64 pp., 1s. Book III.: Paper, 48 pp., 2d.; cloth, 48 pp., 3d.; Teacher's Guide, 96 pp., 1s. 6d. Book IV.: Paper, 64 pp., 3d.; cloth, 64 pp., 4d.; Teacher's Guide, 128 pp., 1s. 6d.

"A Shorter Geometry." By C. Godfrey and A. W. Siddons. xxii+302 pp. (Cambridge University Press.) 2s. 6d.

"Solutions of the Exercises in Godfrey and Siddons's Solid Geometry." By C. L. Beaven. iv+164 pp. (Cambridge University Press.) 5s. net.

"The Rational Arithmetic for Rural Schools." By George Ricks. (Macmillan.) Teacher's Book: Third Year's Course, 72 pp., 8d.; Fourth Year's Course, 72 pp., 8d. Scholar's Book: Third Year's Course, 48 pp., 3d.; Fourth Year's Course, 48 pp., 3d.

"Macmillan's Reform Arithmetic." By Pollard Wilkin-son and F. W. Cook. (Macmillan.) Book I., 48 pp., 4d.;

Book II., 48 pp., 4*d.*; Book III., 48 pp., 4*d.*; Book IV., 48 pp., 4*d.*; Book V., 64 pp., 5*d.*; Book VI., 64 pp., 5*d.* (in cloth).

Science and Technology.

"The Sun." By G. C. Abbot. 448 pp. (Appleton.) 7*s.* 6*d.* net.

"Hereditry." By Wm. E. Castle. 184 pp. (Appleton.) 6*s.* net.

"An Experimental Course in Physical Chemistry." Vol. II. By Dr. J. F. Spencer. xvi+256 pp. (Bell.) 3*s.* 6*d.*

"A College Text-book of Physics." By Prof. A. L. Kimball. ix+692 pp. (Bell.) 10*s.* 6*d.* net.

"Woodwork Exercises. Treated Mathematically." By F. E. Drury. viii+215 pp. (Bell.) 2*s.* 6*d.*

"Botanical Experiments for Schools. Fully illustrated by Dorothea Cowie. By Ida H. Jackson. 104 pp. (Blackie.) 1*s.* 6*d.*

"Educational Handwork." Intermediate Course. By J. L. Martin and C. V. Manley. 100 pp. (Blackie.) 1*s.* 6*d.*

"The Rambler Nature Books." A series of bright, open-air books graduated to suit the different ages of children. "By Hedgerow, Mead, and Pool." By Margaret Cameron. 56 pp. 6*d.* "By Common, Pinewood, and Bog." By Margaret Cameron. 56 pp. 6*d.* "On the Farm." By Margaret Cameron. 56 pp. 6*d.* "Stories of Animal Life." By Wm. J. Claxton. 96 pp. 9*d.* (Blackie.)

"Chambers's Navigation." A guide to the examination of Second Hands, Skippers, and Extra Skippers of fishing vessels and trawlers. By John Don and W. J. Caird. Edited by J. Bolam, Leith Nautical College. 312 pp. (Chambers.) 2*s.* net.

"Cocoa and Chocolate." By R. Whympier. 340 pp. (Churchill.) 15*s.* net.

"Microbiology." By C. E. Marshall. 766 pp. (Churchill.) 10*s.* 6*d.* net.

"Who's Who in Science, 1912." Editor, H. H. Stephenson. 339 pp. (Churchill.) 6*s.* net.

"School Chemistry." With many diagrams. By F. R. L. Wilson and G. W. Hedley. 572 pp. (Clarendon Press.) 4*s.* 6*d.* Separately: Part I., 2*s.* 6*d.*; Part II., 2*s.* 6*d.*

"Elementary Graphic Statics." By W. J. Crawford. viii+131 pp. (Griffin.) 2*s.* 6*d.* net.

"The Metallurgy of Steel." By F. W. Harbord and J. W. Hall. Vol I. xvi+522+xxix pp. Vol II. xviii+411+xxix pp. (Griffin.) 36*s.* net.

"An Elementary Text-book of Metallurgy." By A. Humboldt Sexton. 263 pp. (Griffin.) 6*s.*

"Elementary Coal Mining." By George L. Kerr. 225 pp. (Griffin.) 3*s.* 6*d.*

"A Pocket Book of Marine Engineering Rules and Tables." By A. E. Seaton and H. M. Rounthwaite. 551 pp. (Griffin.) 8*s.* 6*d.*

"Internal Combustion Engines and Gas Producers." By C. W. Asklng and E. Roesler. x+303 pp. (Griffin.) 12*s.* 6*d.* net.

"An Introduction to British Clays, Shales and Sands." By Alfred B. Searle. xi+451 pp. (Griffin.) 7*s.* 6*d.* net.

"The Chemistry of the Radio-Elements." By Frederick Soddy, F.R.S. (Longmans.) 2*s.* 6*d.* net.

"A Nature Study Guide." By W. S. Furneaux. (Longmans.) 3*s.* 6*d.* net.

"Outlines of Domestic Science: A Manual for Indian Readers." By Lillian Sawtell. (Longmans.) 2*s.*

"A First Year Physical Chemistry." By T. P. Hilditch. xx+176 pp. (Methuen.) 2*s.*

"Physico-chemical Calculations." By Joseph Knox. 186 pp. (Methuen.) 2*s.* 6*d.*

Pedagogy.

"Educational Problems." By G. Stanley Hall. (2 vols.) Vol. I., 710 pp. Vol. II., 714 pp. (Appleton.) 31*s.* 6*d.* net.

"The Pedagogy of Educational Handicraft." By T. W. Berry. 102 pp. (Blackie.) 1*s.* 6*d.* net.

"Education for Citizenship." By Dr. Georg Kerchensteiner. With introduction by Dr. M. E. Sadler. 153 pp. (Harrap.) 2*s.* 6*d.* net.

"Syllabus of a Course of Study on the History and Principles of Education." By Dr. Paul Monroe. 93 pp. (Macmillan.) 2*s.* net.

"The School World." Vol. XIII. January to December, 1911. 492 pp. (Macmillan.) 7*s.* 6*d.* net.

"Letter Games." By L. K. Schulze. 48 pp. (Pitman.) 1*s.*

Art.

"A Manual of Drawing." Part II. By W. W. Rawson. (Longmans.) 5*s.*

Miscellaneous.

"Charles Dickens." By Belle Moses. 331 pp. (Appleton.) 5*s.*

"Cambridge Manuals of Science and Literature." (1)

"Migration of Birds." By T. A. Coward. x+138 pp. (2) "Prehistoric Man." By W. L. H. Duckworth. viii+

156 pp. (3) "The Natural History of Clay." By Alfred B. Searle. viii+176 pp. (4) "The Modern Locomotive."

By C. Edgar Allen. x+174 pp. (5) "Earthworms and their Allies." By Frank E. Beddard. viii+150 pp. (Cambridge University Press.) 1*s.* each.

"The Second Book of Kings." The Smaller Cambridge Bible for Schools. By F. H. Henessy. 184 pp. (Cambridge University Press.) 1*s.* net.

"Chambers's Seasonal Nature Poems for Infant Classes." Selected and edited by Margaret Riach. 96 pp. (Chambers.) 6*d.* net.

"Gospel of St. Matthew." Edited by Rev. T. Walker and T. W. Shuker. 152 pp. (Clive.) 1*s.* 6*d.*

"Acts of the Apostles." Part II., Chapters XIII.-XXVIII. Edited by Rev. W. H. Flecker. 96 pp. (Clive.) 1*s.* 6*d.*

"'Guide' Syllabus Register and Weekly Record." (Also styled, to distinguish from other "'Guide' Syllabus Registers," as "'Guide' Syllabus Register No. 3.")

128 pp. (Davis and Moughton.) 2*s.*

"Hymns and Psalms for Secondary Schools." By J. N. Downes. With introduction by Dr. Horace Piggott. xii+180 pp. (Dent.) 6*d.* net.

"The Year Book of the Scientific and Learned Societies of Great Britain and Ireland." Compiled from Official Sources. 374 pp. (Griffin.) 7*s.* 6*d.*

"Combined Musical Reader." Book 3. 30 pp. (McDougall's Educational Co.) 5*d.*

"Infant Care and Housecraft." By Dr. Emlyn Jones and Rev. J. W. Hayes. 90 pp. (Philip.) 8*d.*

"Mothercraft." By Ellis H. Chadwick. 126 pp. (Pitman.) 9*d.* net.

"Needlework Manuals for Upper Standards and Evening Schools." IV., V., VI. By Florence Shaw. 24 pp. (Pitman.) 3*d.* net each.

"Athletic Training for Girls." C. E. Thomas. 228 pp. (Pitman.) 3*s.* 6*d.* 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.

A School Experiment in the Credibility of Evidence.

An experiment in the credibility of evidence, suggested by Prof. Welton in his work, "The Psychology of Education," was performed by the writer during the last week of the autumn term, the interested victims being a very intelligent class of boys between the ages of fifteen and sixteen. A chosen story was read privately to a particular member of the form, who reproduced it, in writing, as accurately and fully as possible, having a room to himself while engaged upon the composition. His version was read to a second boy, who in a similar manner wrote down what he had heard; the second boy's version was read to a third; and so on through the form of twenty-two boys, each of whom gave the story any title he liked. Of course, everybody was pledged not to show his version, or talk about it, to the others who had not yet taken part. Thus between the twenty-second version and the original story there was considerable latitude for error, and although everyone did his best to reproduce accurately what he had heard, the variation was so great, and the nature of the alterations so peculiar, that the result led to some interesting conclusions, not only in regard to the general trustworthiness of testimony, but also in respect to the mental processes of the pupils.

The story read to the first boy was as follows :

Accompanied by his familiar spirit in the shape of a dog, Faust wanders through the whole of Europe, leads a life of pleasure, and performs wonderful feats of magic, of which, for want of space, we can mention only four.

At the Court of the Emperor Charles V. of Germany he once, at the Emperor's request, called up the form of Alexander the Great, the famous King of Macedon.

In the company of a few of his friends Faust once met a peasant with a load of hay in a narrow street, and as the peasant did not immediately move out of his way, the enraged magician swallowed peasant, both of the horses, cart, hay, and all.

At a baker's shop he once asked for a fresh loaf of bread, and cut it; thereupon a quantity of gold pieces fell out.

At an inn Faust once ordered a glass of wine, but told the waiter not to make it too full or he would swallow him. The waiter, however, laughed at the doctor's threat, and filled the glass up to the brim. Faust opened his mouth wide, and to the astonishment of all actually swallowed the man. Then he said, laughing: "After such a nice piece of meat I must have a good drink of water," and he took a bucket of water and drank it to the last drop. The man was soon afterwards found in the kitchen in a tub of water, and the whole of the company, except the man, laughed greatly at Faust's joke.

The following was the last version :

Honesty is the best Policy.

Once upon a time there lived a giant named Faust, who boasted a remarkable propensity for swallowing human beings. One day, as he was walking down a street, he became thirsty, and, stopping outside a shop, called for a drink. He demanded wine, which was his favourite thirst-quencher. The shopkeeper, to whom honesty was not the best policy, went to get the wine, but diluted it with water, thinking thereby to gain something. Faust,

however, on receiving the wine immediately perceived it was diluted, and bade the shopkeeper fetch him some more upon pain of being swallowed.

It will be seen that the point of the original story has been completely lost, the most marked tendencies in the development of the plot having been, first, the assimilation, and, secondly, the rationalisation, of the incidents. The variation is the more instructive because any two consecutive versions present little divergence. The magnitude of Faust's swallowing feats naturally suggested that he was of gigantic size, and he remained a "giant" long after the feats themselves had disappeared. The cutting of the loaf of bread became with the ninth boy the swallowing of "a whole loaf without the least exertion"; in the eleventh version Faust was merely "capable of swallowing a whole loaf in one gulp," and the incident, having degenerated into a mere possibility, was soon omitted. The assimilation and rationalisation are typical.

It is curious to notice how the idea of dilution got into the story. Faust in the original had drunk a bucket of water; to the second pupil this suggested that the waiter had diluted the wine; adulteration henceforth became the offence for which the waiter was swallowed, and when the ninth pupil, having stated that "the waiter was eventually made another victim to Faust's inhuman appetite," went on to remark that: "It appears that this individual was more fortunate than the majority of Faust's victims, for he was afterwards discovered outside the hotel, alive"—the step to a complete rationalisation of the incident is obviously imminent.

The study of the gradual development and metamorphosis of the story in all its details is very instructive, but too long to deal with in a letter. In several cases the temperaments of particular pupils were clearly seen in special turns which they gave to the narrative. The general mental process by which the story was transformed was sufficiently clear. Each boy forgot a few details of the version read to him; he unconsciously filled in the gaps by imagination, working on the material of the story and other material supplied by his own experience. In apperceiving the incidents he necessarily fitted them into his own systems of ideas, and thus coloured his version with his own individuality. The process is a universal law of mind, and hence the legal doctrine that "hearsay is not evidence."

The rationalisation of the story opens up an interesting field of conjecture. One cannot fail to see in it a precisely opposite tendency to that which prevailed in Europe when the Faust legend grew up, and it may not be too far-fetched to regard the experiment as showing the incredulity of the modern spirit. The Faust legend was formed when a belief in the supernatural coloured the whole of life; its decomposition, in the process of our experiment, belongs to an age which has practically ceased to believe in all supernatural explanations of phenomena.

ARNOLD SMITH.

Battersea Polytechnic Secondary School.

A Method of Teaching Shape and Colour.

It has occurred to me that possibly an account of my method of teaching shape and colour to my younger pupils of from thirteen to fifteen years of age may be of some general interest, for although in reality nothing more than a new arrangement of old materials, it is in its present form certainly worth a fair trial, for it does undoubtedly tend to the production of good results in that it helps to develop powers of analysis and of observation even in such a comparatively simple exercise as elementary drawing.

I commenced my system some years ago by an attempt

to show the importance of reflected colour in painting. To do this, I encouraged my more advanced pupils to paint two exercises, both from the same cast. For the first of these the background and surrounding would be of one colour—perhaps blue—and that for the second red. When completed these were placed side by side, and the student directed to note carefully the widely varying effects thus obtained. I found that this method would produce better results than the old way of working from the ordinary still-life objects, for the obvious reason that the absorption of reflected colour on the white cast was far more evident to the untrained eye of the beginner.

Later I began experiments with ordinary wooden models—cube, cylinder, prism, &c.—which I had painted in various bright colours, using for this purpose distemper or oil paints or aniline dyes, and making each a different tint. The models could then be used in a sequence of groups, as required from time to time. I would advise that one white model should always be included, as this gives a better idea of the “pitch” necessary for the coloured objects. At the commencement of the course I used a white board on which to place the group, but later this would be varied so that the board became green or red, &c., and a vase or wooden model white. It was interesting to observe how very rarely these beginners—usually boys and girls from the secondary schools—would realise at first that the shade colour of a red or blue or yellow object was not merely a stronger wash of the same colour. I discovered also, at this time, that about 2 per cent. were unable to distinguish between green and red, and am now experimenting to find out if this malady is permanent, or one which can be cured by early training.

The progress of the class was very marked, so much so that after the sixth lesson I felt justified in going a step further and introducing coloured backgrounds. These, naturally, led up to the observation of simultaneous contrasts of colour, but they also fulfilled a simpler purpose by enabling the pupils to arrive at a more complete result, for the background would show up and enrich the tone and colour of the models.

This is as far as I have gone at present, but I see no reason why the course should not be extended by including memory drawing of these coloured models. There is no doubt, in my mind, that the practice of memory colour-work could and should be taught in all secondary schools. Again, it has been the custom in schools of art to teach painting of still life from models having low-toned and broken local tints, but by substituting primary, or even secondary, coloured objects, a much clearer idea of the theory and practice of colour could be obtained, and with great economy of time.

WALTER SCHRÖDER.

School of Art, Chester.

The Word “Mass.”

As the result of questions from boys and evening technical students, I have come to the following conclusions, which may, I hope, be of service to others.

The term inertia (or deadness), with its implication of the absence of free-will and initiative, is easily grasped, whether we allude to the inertia of a pyramid or a bullet in the air.

Ordinary technical students, not to mention the young schoolboy, seem to be unable to divest themselves for a very long time of the ideas of bulk and weight when speaking of the “mass of a body.” In fact, a little experience of school life is enough to convince one that the schoolboy regards “mass” as the schoolmaster’s word for weight; and this unavowed and unrealised opinion he clings to in spite of the usual questioning and explaining that take

place. Technical students, too, not realising how inextricably entwined are the ideas of bulk and weight in the everyday use of the words “mass” and “massive” are fogged at the very outset by the use of the term mass where inertia is meant.

Now it is the office of all who teach to convey to and to evoke in the minds of their pupils clear ideas. It is an error for the former to make a fetish of a ritual which, though clear to themselves, is but a mumbo-jumbo to their pupils; nor should intellectual pride in not being subject to the confusions of the vulgar be allowed to seduce them from their duty of making all their terms unambiguous.

Therefore I venture to suggest that in view of the conflict between the popular and technical uses of the word mass we dethrone it and re-enthroned the word “inertia,” and further create the term “inert.” We might define

One inert $\left\{ \begin{array}{l} \text{F.P.S.} \\ \text{C.G.S.} \end{array} \right\}$ as the inertia of $\left\{ \begin{array}{l} \text{the} \\ \text{of the} \end{array} \right\}$ standard $\left\{ \begin{array}{l} \text{pound} \\ \text{kilogram} \end{array} \right\}$ kept in $\left\{ \begin{array}{l} \text{London} \\ \text{Paris} \end{array} \right\}$.

An inert of any other substance would be that quantity of it which had the same inertia as the standard $\left\{ \begin{array}{l} \text{pound} \\ \text{kilogram} \end{array} \right\}$.

By adopting this course we avoid all theories as to the ultimate structure of matter, and, keeping solely to experimental fact, run no risk of intellectual dishonesty—a peril too often courted by all sorts and conditions of men.

We then define our unit force in terms of this standard of inertia and of the acceleration given it by the application of the force, all this being observable when standard time has been defined.

It will, unfortunately, be also necessary to point out that in this country the unit of force is g times the value textbook ideals would lead one to adopt.

Again, “moment of inertia,” as the measure of the inertia of a body as regards its rotation, would then seem a natural use of words, and not the strange term it is now to the pupil trained to use the word “mass.” Further, we should define density as the number of inerts present per unit bulk and relative density correspondingly.

Finally, it may be permissible to point out that density is a preposterous term to use with little boys—their minds have not developed sufficiently to grasp it, nor do their elders grasp it until they do dynamics. “Specific gravity,” as the number got by comparing the real weight with what the weight would be if the body were made of water, is adequate for the statical work of lower forms, and intelligible.

ARNOLD MERRICK.

Macclesfield.

The School World.

A Monthly Magazine of Educational Work and Progress.

EDITORIAL AND PUBLISHING OFFICES,

ST. MARTIN'S STREET, LONDON, W.C.

Articles contributed to “The School World” are copyright and must not be reproduced without the permission of the Editors.

Contributions and General Correspondence should be sent to the Editors.

Business Letters and Advertisements should be addressed to the Publishers.

THE SCHOOL WORLD is published on the first of each month. The price of a single copy is 6d. Annual subscription, including postage, 7s. 6d.

The Editors will be glad to consider suitable articles, which, if not accepted, will be returned when the postage is prepaid.

All contributions must be accompanied by the name and address of the author, though not necessarily for publication.

The School World

A Monthly Magazine of Educational Work and Progress.

No. 160.

APRIL, 1912.

SIXPENCE.

A SCOUTING EXPERIMENT.

By ERNEST YOUNG, B.Sc.,

Headmaster of the County School, Harrow.

MR. Beeton's article in *THE SCHOOL WORLD*, March, 1911, attracted my attention to the possibilities of the Scout movement as applied to secondary schools, and led me to purchase and read with interest "Scouting for Boys" by the Chief Scout. The perusal of this inspiring work deepened my impression that scouting, properly conducted, possessed moral and educational possibilities of incalculable value, but led me to the conclusion that to get these to bring their whole force to bear on school life it would be necessary to make an effort to get every boy, if possible, to enrol himself. The difficulty I foresaw would be to persuade the parents to pay the cost and give their unqualified support. I determined to take on the whole work of organisation and to act as scoutmaster myself and exert all the powers at my disposal to attain my object of making the school one big troop.

In the following account of the experiment that was made it will be seen that I have adopted most, but not all, of Mr. Beeton's ideas; in particular he advises a schoolmaster to start with forty boys, while I aimed at getting 185 boys, that being the number then in the school.

To get the parents to examine the matter we called a public meeting at which parents, local scout officials, members of the different religious denominations and other friends of the school were present. We were fortunate in securing the presence of Sir R. Baden Powell to address the meeting, and most of our subsequent success is undoubtedly attributable to his magnetic personality and to the powerful appeal that he made on behalf of the movement he has so much at heart. At this meeting emphasis was laid on the value of the movement as a training in character,

as a training for future social service on the part of the boys, and on its educational and physical possibilities. It was explained that it had no connection with soldiering. Information was given as to the cost to the parent and the demand it would make on the time of the boy. Promises were made that no night work would be attempted and that no subscriptions would be called for beyond the cost of the uniform. Parents were also informed that they would be at liberty to withdraw their sons from exercises which they deemed to be of a military character.

On the morning following the meeting I addressed the boys on the subject, repeating much that had been said the evening before. That day, each boy took home a circular letter giving details of the times of meetings, the character of the instruction proposed, and the cost of the various portions of the uniform. The governors had agreed to the cost of scout games material being partly met from the games fund; this is compulsory and amounts to 2s. 6d. per term.

The first meeting for the enrolment of recruits took place on the Saturday morning. Our arrangements for holidays are whole days on Saturdays during the winter and spring and half holidays on Wednesdays and Saturdays during the summer term, an arrangement particularly suitable for schools which contemplate scouting on a large scale. In the winter and spring the boy can attend in the morning for instruction in such things as signalling and ambulance and yet join in the games in the afternoon if he be a member of either of the school elevens or if he be required for house matches.

On the Saturday morning 114 boys turned up to enrol themselves. They were full of enthusiasm and as keen as mustard. One boy had withdrawn his savings from the Post Office Savings Bank in order to pay for all his uniform himself and so feel that he was doing

No. 160, VOL. 14.]

L

the thing off his own bat. This was suggested to the others as an example to be followed, as the proper spirit in which to take part in a movement the essential spirit of which is self-help and independence.

The boys were marshalled in the hall and asked to sit down on the floor, chairs being stored in another part of the building. At once it was evident that few boys knew how to make themselves comfortable without a chair, so accustomed were they to all the resources of civilised homes. A short address was given, the substance of which was taken from "Scouting for Boys," pp. 5 to 7. For the benefit of those boys who had never been scouts, the organisation of the Boy Scout movement was then explained in so far as it affected those present. (I began at the definition of a Tenderfoot and ended with that of a Patrol Leader, p. 24.)

That was enough talking for the first day, and as I looked at the crowd of expectant faces gazing up at me from the floor, all alight with the desire to be useful both to themselves and others, I began to have a moment's doubt as to the possibility of satisfying their desires for immediate action. So I explained that the organisation of so many boys would be of some difficulty and would take a little time, but, just as Rome could not be built in a day, so the best of scout troops, on such a scale, could not be set going in a single morning.

With the assistance of two members of my staff, who had volunteered to assist, we proceeded to form the patrols and appoint the leaders. It was felt, for the purpose of the association of the schoolwork with the out-of-door activities, that all the boys in the same patrol should belong to the same form. This applied to the leader as well as to the other members of the patrol. The boys were first arranged in forms, and those who had held any rank in a local troop were instructed to stand aside as they were to be the leaders in the first instance. The number of boys in the form was counted and divided up so as to form patrols of a leader and five or six scouts. The full number of the patrol is eight, but blanks were purposely left in order that new boys might be placed with others who had had some experience, and that those boys not present at the meeting might, if they joined later, find places within existing ranks without the necessity of continually forming new patrols. The leaders having been selected, they were allowed, turn and turn about, to choose their own followers, and as each patrol was formed, the leader took his men to one of the class rooms where the names of the members of the patrols were registered. The boys were then dismissed to the playground for

a few minutes to let off steam, for by this time their excitement would not allow them to sit still or to leave off talking. Discipline was, for a moment, suspended and no unwise attempt to sit on the safety valve was made. After a few moments the troop was reassembled in the playground and taken back to the hall. The effect of the enrolment under definite leaders was at once apparent. Each patrol stood in line, with the leader in front, and there was an air of discipline and attention about the whole crowd that showed the effect of such an organisation in a very marked manner.

Once more, undue hurry was deprecated, and, further, the boys were given until the next Wednesday morning to alter their patrols if exchanges could be mutually effected. It was understood that by that day all arrangements must be finally completed and a list of the patrols handed in as it was to remain, except for additions, for a whole year. The boys were then dismissed. The patrol leaders remained behind for a few moments and, without assistance from any of the staff, settled their own patrol names and cries. All this time their followers hung about the outside of the building, anxiously awaiting to know whether they were to be Wolves or Eagles.

By the day appointed all the boys who had obtained the permission of their parents had entered up their names and the number had risen to 145.

The troop contained a great many boys who had previously been scouts and who held the rank of either Tenderfoot or Second Class Scout. These ranks, gained elsewhere, were at once recognised, but the boys were asked for their own sakes and that of their companions to undergo most of the tests again, while not being deprived of the rank they already held.

As a troop grows in age, various forms of specialisation are introduced, and many kinds of activity are possible. For each of these, special instructors are required, and it will probably be found quite easy to obtain them. It is not so easy, however, to persuade one's friends to give up practically all their time to the duties of assistant scoutmaster. The staff of the school is available to some extent; my own have shown the greatest willingness to help. But, if possible, outsiders are better, particularly old boys. The attitude of the boy towards the master is largely the same outside as inside school, and the training in obedience which is so valuable a part of the scout training is not got by employing the staff. The boys would not dream of disobeying them. The staff are best employed as special instructors.

Given, then, two or three hundred boys, all enrolled at the same time, and all of about the

same standing, the problem becomes how to put them through the preliminary stages so as to arrive at a point where specialised instruction can begin. (I take no account of scout games pure and simple; they must be dealt with at another time).

There are various ranks in the order of the Boy Scouts, and the discussion of how to get from one to the other is too long to detain us here. The first necessary step is to pass the tests for a Tenderfoot. These are as follows:

1. *Knowledge of the Scout Law.*—I regard the Scout Law as the most practical form of Christianity yet presented to boys, and I had no hesitation in suspending for a few mornings the usual reading of a lesson from the Bible at morning prayers in order to find time to expound the meaning of the ten points of this admirable rendering for boys of so much of the teaching of the Sermon on the Mount. In this way every boy got instruction on the moral aspect of scouting whether he belonged to the troop or not, and if he joined later he was already familiar with its meaning. Every boy was instructed to learn the Law by heart and to write it out under supervision of one of the staff whenever he found it convenient to do so. Most of the scouts took advantage of the detention period to do their writing at that time, the detention master being quite willing to collect the papers and forward them to the scoutmaster.

2. *Knowledge of the Scouts' Signs.*—This is merely a form of drawing and was left to each patrol leader. The test was made in writing and conducted during the detention period whenever a candidate cared to present himself. It could, however, be put into the hands of the art master in school-time, and he could get a useful lesson out of it, especially if he combined with it the drawing of the patrol animals, for each scout has to draw the head or, in some cases, the outline of the whole body of his patrol animal. Even the worst draughtsman will put his heart into being able to make a passable representation of the head of a raven, a bull, or some other beast whose name he bears.

3. *Knowledge of the Scouts' Salute.*—This was taught by the patrol leaders; it presents no difficulties, and the test can be individually and rapidly made at convenient times. It is probable that the rules on saluting will require some revision when large school troops are formed in which the patrols are sections of forms. The present rule is that any scout is to salute any patrol leader with the full salute whenever he meets him. Most schoolmasters will agree that a big boy of seventeen in an upper form would resent having to salute a tiny patrol leader of ten at all hours of the day

in all kinds of public places. It will, perhaps, be found quite sufficient to instruct the boys to salute a patrol leader in their own form in the usual official manner.

4. *The Composition of the Union Jack and the Right Way to Fly it.*—To pass this test each boy had to make four drawings, one of each of the three separate crosses of which the Union Jack is composed and one of the complete flag. These were done in the art room as lessons in brush work. The history of the flag gives the history master an opportunity of calling attention to the dates and conditions of the union of the several kingdoms of the British Isles, and the teacher of literature has a fine chance of making use of the stories of the patron saints as materials for composition lessons.

5. *Tying Six Given Knots.*—These were taught by the patrol leaders. Each boy has to be tested individually and this takes a long time. We were fortunate in securing an assistant scoutmaster of a neighbouring troop. He devoted some five or six hours to our service. We were able to repay him in other ways by rendering assistance to his troop when they were too weak to meet competitors for scout games.

To encourage the patrol leaders to see that their patrols got through the preliminary stages as quickly as possible they were not given their badges as leaders until the whole of their patrol had qualified.

Such a wholesale treatment of the Tenderfoot tests is only necessary or possible at the inauguration of a large troop. As new boys enter the school they can be handed over to other scouts to be trained. The training of a Tenderfoot constitutes one of the tests for a First Class badge, and as each boy trains a newcomer the fact is entered in a register and stands to his credit until such time as he has completed the other tests for this distinction.

It will be seen at once that the Tenderfoot tests provide opportunities for certain teaching of a moral character and also for creating an interest in some branches of school work. The latter point could be elaborated to an extent not possible now, but, at the outset, a word of warning must be uttered as to the danger of making a boy discontented with the movement by turning it into nothing else but school-work. It may be added, too, that a boy should never be blamed, in public at any rate, for failure in school duties, by reference to his promise as a scout. An injudicious master might ruin the whole scheme if he were not careful. To tell a boy who had not done his home-work that he had broken his promise to do his duty at all times would be truthful but unwise. It is to be hoped that the moral

discipline of the scout training will result in a greater attention to school duties, but we have to remember that schoolboys are not archangels any more than their masters, and all reference to the Scout Law as applied to individuals should be made in private and strictly confined to questions of morals. A boy guilty of serious breaches of the Scout Law, or of insubordination to his leaders or of similar offences, should be tried by a court-martial of the patrol leaders, and his punishment should be of a kind that would never be inflicted for breaches of school discipline and regulations.

SCHEMES FOR GEOGRAPHY TEACHING.

By A. H. HARRIES, M.A. (Oxon.), F.R.G.S.
Central Secondary School, Sheffield.

THAT eruptive progress in the teaching of geography which we have experienced in recent years is now practically over. It has produced many schemes and many books, many of which are very good in their way, but their value is lessened by the fact that they are to be used outside the atmosphere that the writer creates in his own school. That is why we are still crying in our wilderness of plenty for a suitable book. There is no remedy for this state of things, except that every school should make its own book. For all that, there should be some recognised general principles upon which the subject should be taught, framed so generally, indeed, as not to cramp the ingenuity of the teacher, yet so rigidly as to conserve and devote to good purpose as much as possible of that quality. Long ago, the Board of Education issued a circular upon the teaching of geography, which, with the exception of Mr. L'Éstrange's book upon the subject, remains to this day the only satisfactory attempt at an adequate scheme for a whole school.

A slight examination of past and present aims in geography teaching may conveniently be prefixed to a discussion of any particular form of scheme. Years ago we taught geography upon the place-name system, with anecdotes introduced, I remember, to make the lesson interesting. That system was utterly condemned, because we found that it did not give the pupil sufficient exercise, and many an old boy's mind is bitterly amused with the remembrance of canings that followed a forgotten cape or bay. Thence, we flew to a scheme the soul of which was "causation"; others developed that apparently most matter-of-fact mode of teaching by means of statistics. These were the physicists. The arts-man, on the

other hand, regarded the subject as essentially a subject for imagination. Now, my experience has indicated some good—that we cannot afford to ignore—in every one of these schemes, for even the oldest presents exercise, and a most necessary exercise it is, in the form of memory training. It is most suitable for elementary and lower secondary-school work, in that it befits the period before adolescence more than it does the period immediately following, or any subsequent period. But, above all, it is important, in view of the modern tendency to emphasise the conclusion at the expense of the material, that we guard against omission of this branch of work. Just as the learning of a string of dates, a series of events, or the names of a number of kings in history, though despised, is clarifying, so also, in geography, is the learning of a store of facts. On the other hand, this ancient pursuit of fact gave to curiosity and the natural delight in the search for interrelation and cause no scope, and so there was no spark of life in the body of our teaching. In supplying this spark lay the value of the "causation" system. But even this system in the hands of many teachers preserved orderly life only so long as the lesson lasted, and eventually led only to muddle, because the course pursued demanded a knowledge of physics far beyond what the pupils' age allowed.

The statistical system attempted to deal generally with everyday things, and, without pretending to be an imaginative mode of treatment, ended in making an insatiable demand upon a quickly exhausted store of imagination. In a limited way the representation of millions of tons by squares of certain sizes helped realisation, provided imagination did not cripple itself by acrobatic feats of stretching, but by means of some hundreds of tests performed at the Central Secondary School, Sheffield, I found that at least so far as memory-work is concerned this mode of teaching is worse than futile, for by direct learning of fact efficiency was 90 per cent., while learning through the medium of constructed squares, &c., the efficiency was 30 per cent. The time for *learning* (excluding construction) was the same in each case, and the exercises of like difficulty. Further, it was found that the greater the work in construction the less the efficiency in learning. Of course, this is easily explained if we remember that two matters occupied the centre of attention at the same time—the struggle for supremacy cost something like 60 per cent. of the efficiency. It is possible that, had both sets of work been given time enough for them to become perfectly known, the results obtained by diagram would be more permanent. But can we afford that

time when we have but two and a-quarter hours a fortnight in which to treat of the whole subject? Besides, is this geography?

Another branch of this so-called "practical" method of teaching geography, namely, field-work, is less open to serious objection; but even this, carried to a stage more advanced than that which is strictly necessary to understand an ordnance map, is out of place in schools. Its province is the university, and its position in regard to geography is comparable with that which a knowledge of constitutional law bears to the study of history. To my knowledge this work has been done with very satisfactory results in the new county school at Redruth, Cornwall, where admirable advantages for contouring hills, for work with a theodolite or plane-table offered themselves; but I believe the exercises were found to be scarcely sufficiently varied, and the time spent upon these exercises was too great for much of this work to be done. In the poorer class of school in our large towns expense of work of this nature is well-nigh prohibitive. But field-work that seeks to explain topographical influence is excellent, provided that the teacher guards against the side issues of geology, &c.

While "geography" *alias* "physics" is well-nigh impossible as a school subject, geography proper—as an imaginative subject, with a topographical basis and as descriptive of distribution and control, not only of man and industry, but also of vegetation, animal life, and civilisation—is an excellent subject. In the study of home geography the ordnance map and work in the field fall here into their proper place. But that this subject may be successful as a study of distant countries, it is imperative that good accounts of travel should be placed in the hands of pupils, so that when the wall map comes to be considered in the manner of treatment extended to the ordnance survey map, imagination may do its work. In this connection it may be said that reading parts of Brehm, Wallace, Darwin, Sven Hedin, Johnston, Stanley, Waterton, and even Marco Polo, together with portions of the *Geographical Journal*, is of infinitely more value than talking vaguely of altitude, azimuth, and terrestrial magnetism; and the reading of Brehm's account of the Tundra, or the Steppes, is far more stimulating to the student of control and distribution than the bald account of the distribution of vegetation given in our school books.

In making a scheme for geography teaching to suit a large school, where many teachers are engaged in doing the same work, the concentric system developed by Mr. L'Estrange may prove unsuitable, owing to the variation in

treatment that arises out of the breadth of the syllabus for each year. Yet an attempt should be made to preserve this system if possible, if only because of the opportunity that it gives for constant revision and progress by grafting upon work known to have been done. For another reason, the scheme is to be recommended in that it lends itself to a massive and comparative treatment of large units.

Essentially the system may be preserved by—

(1) Making the first year's syllabus as wide as possible—to include the whole world, if that can be done.

(2) By arranging the syllabus of each succeeding year so that the units included are as nearly representative of the whole world as can be managed. On such a plan the syllabus broadly works out thus:

First Year.—The whole world, with a little physical introduction.

Second Year.—(a) North and South America—a fuller treatment of units which, owing to their great extent from north to south, are affected by those main phenomena which affect the whole world. (b) The British Isles.

Third Year.—The Old World, treated strictly regionally (Australia may profitably be omitted).

Fourth Year.—The British Empire. Its units should be regarded as typical of the various geographical and climatic provinces.

Fifth Year.—The world generally, as fully as possible, with considerable physical work and an accurate study of the British Isles.

This scheme, which in its early parts resembles the Board of Education scheme, recommends itself for two main reasons:

(1) It sets out in the first year to gather together the threads of the primary-school teaching by making the treatment as wide as possible, and this guarantees a firm basis for the secondary-school superstructure.

(2) By the same means it gets rid of all those inconveniences that arise out of the practice of choosing a small unit, which may be (as in the case of Great Britain) an exception to the chief geographical rules.

But I am aware that this scheme may be subject to criticism on the ground that it starts with conceptions that are too new. But no simple, new concept is more new than another new one, and the idea of a mountain range in America is no more strange than the idea of a mountain range in Yorkshire. Difficulty arises out of the connection—more still out of the absence of connection—of concepts, such as one would at once experience in studying the geography of Britain.

A scheme of geography teaching that ends here is incomplete, for it defers to that opinion

which prevails (though it is not always expressed) that the subject-matter of geography will not extend further. Such an opinion regarding the permanent basis of all civilisations is absurd, and the capacity of the subject is almost as great as that of history. I should therefore advocate a course of what is termed historical geography, covering far more than Britain and British history, for the highest form of a secondary school, especially for those boys who are preparing to study the Humanities at Oxford and Cambridge. Even one weekly lesson would be of infinite value. The course might cover such massive subjects as the growth and decay of Latin civilisation and the spread of Teutonic civilisation in later days, and of minor subjects, such as great journeys, explorations, campaigns, and sea power. In the case of Britain such subjects as the following present themselves:

- (1) The extent of Roman civilisation and the thinning of it towards the west.
- (2) The disposition of Roman, Anglo-Saxon, and Danish towns, and the geographical reasons for it.
- (3) The political and economic opposition of East and West from Roman times to the present day in its various aspects.
- (4) The distribution of monastic lands in Britain from the Conquest to Henry VIII.'s time.
- (5) The political influence of Wales and Scotland as geographical units and units of character on mediæval and early modern history, and the distribution of the lands of the great marcher families with the geographical and strategic importance of their castles.
- (6) The distribution of Lollardy and the extent of the survival of antiquated thought and doctrine and the geographical basis thereof, with its influence on emigration.
- (7) The extent of enclosures in the Middle Ages and early modern times, and their influence.
- (8) The guiding influence which topography had upon the great campaigns of the English civil wars.

The subjects are innumerable.

In European history the scope is still wider, extending as it does from the early incursions of the Asiatic nations to the problem of the strategic values of modern State boundaries.

In order that a general uniformity may prevail throughout the teaching, the specialist in the subject might with profit produce a booklet, not for publication, but for private circulation amongst the masters in his school. If the booklet contained, not only a sketch of method, but also in a compressed form the matter for the work, and especially a number of references to standard works, notably original accounts of travel, much good might be done, much time saved, and much of the specialist's patience preserved.

SIMPLIFIED SPELLING.

By Prof. WALTER RIPPMMANN, M.A.

[In our issues for March and April of last year (Vol. 13, pp. 81 and 124) Prof. Rippmann explained the aims of the Simplified Spelling Society and attempted to answer many of the objections offered by teachers of English who would prefer to leave things as they are. We give him here an opportunity of reporting the progress made by the reformers during the past year; and his article is printed in the new style to enable our readers to form an opinion of the appearance of reading matter in the suggested spelling. EDITORS.]

A YEER haz paast sins the problem ov simplified spelling woz plaist befor the reederz ov THE SCHOOL WORLD, and thai mai be interested tu no whot haz been dun in the interval.

In September thair woz a conferens between memberz ov the *Simplified Spelling Board* ov America and memberz ov our Simplified Speling Soesiety. The sceem which had been draun up woz very fuly discust, but the American memberz ov the conferens did not feel justified in promising the adheezhon ov thair *Board*. We hav sins hurd that, whiel thair propoez tu continyu thair method ov propaganda, thair ar foloing our wurc on this sied with grait interest.

Thair can be no dout that az a rezult ov the conferens the sceem ov simplified spelling woz much impruuvd in several particyularz; for this a speshal det ov gratityud iz dyu tu Prof. Grandgent ov Harvard and tu Prof. Hempl ov the Stanford Leland Yueniversity. Aafter sum delai conected with the reorganizaishon ov our Soesiety the sceem woz maid public, with a fyu sliet modifcaishonz ov the form in which it had left the conferens.

Befor giving the sceem it iz wel tu prevent eny misunderstanding az tu its naityur. We hav aulwaiz felt that we cood not du much without a compleet sceem. Our cheef argyument in faivor ov simplified spelling iz the saiving ov tiem in the edyucaishon ov children and the rashonal methodz ov teeching which its adopshon wil render posibl. For this purpos it duz not sufies tu menshon a fyu obvius simplificaishonz; we must sho a sceem which deelz with the hoel problem. It iz not enuf tu determin the reprezentaishon ov consonants,—a comparativly eezzy taasc; we must fais the difcult problem ov the long vouelz and difthongz, and ov the vouelz in unstrest silablz. We hav delt with theez very difcult cwestionz and nou poot forwerd our sceem, not az the laast wurd, but az a

tentativ solyueshon ov a grait and complicated problem. We no that it iz liecly tu leed tu a good deel ov controversy, and that sum ov our propoezalz wil meet with opozishon. That iz egzactly whot we wont. We wont tu set peepl thincing about the speling. We wont them tu realiz aul the seerius rezults ov the preznt speling, and the very weec foundaishonz ov the respect which it inspierz so jeneraly; and we welcum aul critisizm ov our sceem which wil surv tu render simplified speling a beter instruoment for the purpos ov comyuenicaiting thaut.

We ar awair that we ar ecspoezing ourselvz tu atacs from at leest thre siedz. We shal not satisfi thoez hu, ofen with cwiet inadecwait foenetic training, hav bilt up sceemz ov thair oen and looc upon ourz az an objecshonabl rieval. We shal not satisfi thoez hu, aulmoest aulwaiz with practicaly no real nolej ov the history ov the langwij, urj the etimolojical argyument. We shal not satisfi thoez hu, moestly out ov tuch with the practical aspects ov elementary edyucaishon, maintain that our sceem shood be pyuerly foenetic. It iz tolerably surtin that no sceem wood pleez aul. Eny sceem must tu sum ecstent be a compromiez; and no sceem haz eny chaans—I wil not sai ov suces—but ov reezonabl consideraishon bi the jeneral public which departs so far from the preznt speling az tu maic it difcult tu reed.

We hav had convinsing evidens that our sceem iz eezily lurnt, for we hav repeetedly reseevd leterz in simplified speling with hardly a mistaic from corespondents hu had oenly just seen our sceem for the furst tiem. We aulso no from ecspieriens that it iz cwiet eezy to acwier the habit ov rieting it fluently. The reederz ov this articl (moest ov humm prezyuemably ar unacwainted with simplified speling) wil be aibl tu juj whether it iz eezy tu maic out.

In the articlz that apeerd in THE SCHOOL WORLD laast yeer I aanserd the objecshonz moest freecwently braut forwerd az fuly az mi spais aloud. Thoez objecshonz hav sins maid thair apeerans at vairius intervalz in the pres; but we ar stil waiting for eny fresh objecshonz. The oenly objecshon that woz not delt with iz this: that bi having a speling that really reprezented the soundz we shood “interfeer with the regyular evolyueshon” ov our langwij. But ar we not “interfeering” with it az it iz? For an iliterait comyuenity langwij mai be sed tu “evolv” in a natyural wai without “interfeerens”; but az suun az the teecher ariezez and az suun az thair iz a ficut speling ov eny ciend, “interfeerens” iz inevitabl. We then get a sort ov standerd establishit, and such a standerd iz dezierabl

in a siviliezd stait. Abuv the dialects, jeografical and soeshal, thair must be a speech ov edyucaited intercors. This iz ov paramount importans on the stajj; the iedea ov seerius draama being performd bi actorz taucing haaf-a-duzen diferent dialects iz ludicrus. A speech abuv the dialects iz eminently dezierabl for aul ciendz ov public speeing. It iz, however, aulso important for ordinary intercors. The man hu noez oenly hiz dialect iz manifestly at a disadvaantij.

For teeching purposez—whether the lurnerz be our oen children or forinerz—we must hav sum iedeaal speech in our miend if we ar tu teech the pronunsiashon at aul. Tu du this properly, we must maic ourselvz cloesly acwainted with the hoem dialect ov our pyuepilz and hav sum cleer iedea ov the speech we wont them tu acwier. Nou it must be confest that on theez points thair iz much ignorans on the part ov our teecherz, aultho on every sied thair ar moest gratifying sienz ov a groing interest in the living langwij. The preznt speling haz been the moest seerius retarding fors in the progres tordez enlietement. The simplified speling wil du a grait deel tu stimyulait interest.

When teecherz jeneraly ar convursant with the problemz ov the living langwij, thair wil be aibl tu impart a standerd speech systematicaly and not in the raather haphazard maner which iz nou in voeg. Thair wil undoubtedly “interfeer with the evolyueshon” ov the langwij, but in a thautful and intelijent wai. Thair wil contribyut tu the establishing ov a standerd, and wil be interested in maicing that standerd as good as posibl. In duing so, thair wil not turn tu the foenetishanz oenly, but aulso tu the voistrainerz or teecherz ov elocyueshon—if and when the later wil poot befor us a cleer and definit staitment ov thair vyuez, insted ov the contradictory and ofen il-escprest opinionz tu be found in the meny manyualz ov elocyueshon, ets., at preznt on the marcet. I hav cum tu beleev that the best ov them get thair rezults not bi meer chaans, and that thair hav sumthing tu sai; and I wish thair wood hurry up and sai it, in simpl and convinsing wurdz.

But tu return tu the Simplified Speling Soesiety. We hav nou isyud several fresh leeflets and a sicspeny booc (*Simplified Spelling—an Appeal to Common Sense*), which iz on the railwai boocstaulz or can be obtaind thru Messrs. Simpkin, Marshall and Co. We hav aulso a number ov lectyuring engajments for the spring, and ar arainjing stil mor for the autum. We hav cept our iez on the pres, which haz, on the hoel, adopted a very reezonabl atityud, and, on the apeerans ov a hostiel articl, haz rairly refyuezd tu insurt

our repli. Laastly, we hav isyud *The Pioneer*, a munthly jurnal which wil be sent tu aul our memberz and wil aulso be on sail. It iz, ov cors, printed in the simplified speling, and wil contain an acount ov our progres, not oenly heer, but in the Coloniz and in the Yunieted Staits. Our membership iz groing daily; leterz ov encuriement cum in continyualy. We ar becuming mor and mor convinst that we hav begun our vigorus propa-ganda at the riet tiem.

With the ciend consent ov the editorz ov THE SCHOOL WORLD, I hav ritin this articl in the simplified speling; we ar natyuraly ancshus tu familiariez teecherz with it. Sum points in our sceem, as heer egzemplified, mai arouz criticisim; but I ventyur tu aasc thoez incliend tu criticisiez—and, indeed, aul hu hav been good enuf tu reed this articl in spiet ov the speling!—tu send a poestcard tu Mr. S. Walton, the organiezing secretary ov the S.S.S., 44 Great Russell Street, W.C., and he wil be hapy tu send them sum leeflets which thai wil, I beleev, reed with interest.

The foloing taibl givz the sceem in its prezent form :

CONSONANT SOUNDZ					
bet	pet	dip	tip	got	cot
met	net	sing	N.B. linger,	thinc	
win	whim	van	fan	this	thing
so	zest	vizhon	sheen	jest	cheer
yes	hapy	liv	rest		

VOUËL SOUNDZ						
glad	best	lily	song	bud	good	volyum
faather	far	maid	fair	laud	lord	
{ leed	{ liet	{ loed	{ buun	{ dyuety		
{ seing	{ dial	{ going	{ juel	{ dyual		
{ we	{ mi	{ tho	{ thru	{ dyu		
joi	mount	curl	sister			

We hav a leeflet in which it iz descriebd, with a number ov ecsplanatory noets and sum ecstracts in simplified speling. This, liec aul uther leeflets, wil be sent graitis on applicaishon.

Patriots and Tyrants. By M. F. Lansing. vii+184 pp. (Ginn.) 2s.—It would doubtless puzzle Miss Lansing to give a definition of her key-word "freedom" which would apply equally to all the illustrations she gives of it in this little book. But the vagueness of her general terms will not prevent young readers from enjoying the stories which she here tells from mediæval history. The book is one of a series with the title, "Mediæval Builders of the Modern World," and if the others are like this they will form an excellent introduction to more serious study. Hermann, Wittekind, Henry the Fowler, Hereward, Tell, the Dutch "Beggars," are some of her subjects, of which there are sixteen altogether. The book has some good pictures, some notes, and questions.

THE TEACHING OF ENGLISH LITERATURE IN PUBLIC SCHOOLS.

By S. P. B. MAIS, B.A.

Rossall School.

To make the way to learning either less short or less smooth is certainly absurd: yet this is the apparent effect of the prejudice which seems to prevail among us in favour of foreign authors, and of the contempt of our native literature, which this excursive curiosity must necessarily produce. Every man is more speedily instructed in his own language than by any other; before we search the rest of the world for teachers, let us try whether we may not spare our trouble by finding them at home.—*Dr. Johnson.*

I seem to see signs of a movement for real English teaching in the Public Schools.—*Sir Walter Raleigh.*

In a circular issued on December 22nd, 1910, by the Board of Education, attention was directed to the extreme importance of training the youthful mind to appreciate English Literature and of cultivating the power of using the English language in speech and in writing.

In so far as this applied to secondary schools in general, it had the excellent effect of furthering and encouraging their already laudable attempts to inculcate a sense of the intrinsic value of the subject into the minds of that section of the people with whom they come into contact, but up to the present, it appears to have left the larger public schools cold and aloof.

In the first place, the opening sentences of the circular were entirely in the wrong by suggesting that the Board "do not think it necessary to dwell upon the importance of the subject. The claim of English to a definite place in the curriculum of every secondary school is admitted." The "definite place" is so small in some of our schools as to be entirely negligible.

On the classical side of most schools, for instance, English is taught by the classical masters, nearly all of whom ostensibly give up one, at the most two, hours a week to the subject. The general rule in this "English" period is to dictate a fair copy of a Latin or Greek prose, or to translate some passage from the classics that offered unusual difficulty earlier in the day and could not well be crowded into the already "over-full" classical hours; if a play of Shakespeare has to be prepared for an examination, it is left until a few weeks before the paper and then hurriedly gone through in some such edition as that of the Pitt Press, where everything that is wanted for examination purposes is carefully epitomised in the Introduction.

Of grammar, composition, formal essay-

writing, reading of great English authors there is very little.

The defence is that the boys on the classical side are good English scholars by reason of their classics, which in the first place is not true; obviously a course of Burke, Stevenson, and Johnson would make for a better stylist than a series of Greek or Latin authors given the same careful reading and deliberate analysis; in the second, even if it were, would it not be shorter to be a good English scholar by learning English? One mathematician is not necessarily better than another because he has studied his Calculus in the German textbooks.

On the modern side there is more concerted action, but it is painfully without method. Most modern side masters who have to teach elementary Latin find that the greater part of their work is really English grammar; if only boys were well grounded in their own language and taught to realise its beauties and worth before they were allowed to start on a foreign tongue, there would be less of the appalling errors made in all languages that they learn. As it is, the complaint raised in 1385 that "chyldern in scole, azenes ðe usage and manere of al oðer nacions, büð compelled for to leve here owne longage and for to construe here lessons and here ðinges a Frensch" still rankles in our mind, and we feel the injustice keenly that more than five centuries have passed and we yet repeat that

"Hyt semeth a gret wonder how Englysch, ðat ys ðe bürtonge of Englysch men and here owne longage, ys so dyvers (not only of 'soun,' but also of 'spelling' and of 'reproduction') in þis ylond."

Up to the present the English tongue has been condemned as much as the Greek has been extolled, and it is hard to crush even so fatuous a superstition as that which denies the title of greatness to our own language in the past.

When asked for a reason why he purposely omits to teach English grammar, a public school master not infrequently says that the type of boy with whom he deals talks perfect English by instinct and presumably writes it by the same instinct; that it is all very well in the more ordinary secondary school which recruits from every class to start with the elements, but a boy who has been at a private school ought certainly to have acquired by labour, if not intuitively, a thorough knowledge of grammar; the answer to which is to be found either in *The Morning Post* or *The Times* or nearly any daily paper, when an enraged parent inquires what is wrong with a public school system which allows him to pay £200-300 a year for the education of

his son, who, at the age of 18, can neither spell ordinary words correctly, nor combine clauses or sentences together to produce any sensible collection of statements.

One glance at the average letter of even a communicative boy at school shows such slovenliness of punctuation, so small a vocabulary, so bald a style as to compare very unfavourably with the epistolary efforts of the so-called under-educated clerk.

At an age when Chatterton had already written his "Excelente Balade of Charitie" I, in common with a number of boys educated at the latter part of the nineteenth and early years of the twentieth century, was allowed to think that England's greatest writers were Mr. Henty and Mr. Boothby; that all the so-called "classical" authors who wrote in our tongue were "stodgy," ponderous, and without any possible interest or value to any save the Don and the eccentric book-worm; that all poetry, including the works of Shakespeare, was the outpouring of minds of a different calibre from that of the useful citizen, and not only did not elevate or please, but rather tended to deprave our moral sensibilities.

English to us meant intricate tabular analysis and occasional parsing combined with horrible nightmares of "antecedents," "clauses," "subordinate conjunctions," "gerundial infinitives" and "apodosis and protasis," taught to us by men who had no interest in the affair but made us write out (if we were ignorant of them) fifty times the meanings of oxymoron, hypallage and other names comparable in sound and sense only with:—

"Barbara, Celarent, Darii, Ferioque prioris,"

to the beginner of logic. Ten years have passed and I am now one of the Olympians. The change, as Sir Walter Raleigh says, is perceptible, but by no means enough.

Editions of English authors from Beowulf to Mr. Masfield are carefully selected, annotated, and introduced into the public school curriculum, but the way in which they are read, the amount and method of teaching from these authors is as yet altogether chaotic, formless, and wasteful. The general habit in the middle and upper forms is to model themselves on the requirements of, and to prepare for, the Oxford and Cambridge Higher School and Lower Certificate Examinations, which results in one play of Shakespeare and perhaps one novel of Scott being read in one year, an absurd training for an appreciation of English literature.

For 1912 a step has been made in the right direction by introducing a further choice of subject. A selection from Hakluyt's Voyages

is permitted, but it is affording me much interest to see how many schools will take this book. Schoolmasters are ever slow to change; it is much easier to go through "Quentin Durward" according to a formulated plan and with examples of previous examinations before one than to take a leap in the dark and risk reading with boys a book that is but little known and seldom read; boys, again, will not care to work up for an examination an account of voyages containing names and numbers in such quantities; the fear will be ever present that the examiners are sure to ask questions on every detail. The plea that the book was as much a source of inspiration to Tennyson and Kingsley as "Plutarch's Lives" was to Shakespeare is ruined by the thought that extreme accuracy in these details may be required, rather than a general impression or atmosphere.

The play read is taken practically word for word, analysed, traced to its earliest source, classical allusions are hunted to the death, passages of difficulty argued over again and again, with rarely an illuminating or original translation, topical remarks are searched for and long histories of their points are put before the boy until he entirely forgets the play in its intricacy.

He takes and learns copious notes, and learns by heart someone else's theory of the characters; all his attempts to forage for himself or to learn to criticise for himself are stamped out by such a method and, worst of all, he is led to believe that the reading of all plays and novels necessarily involves this exquisite drudgery with so little reward at the end of it.

In a paper on a novel of Scott some 500 pages long, the Board will set a paper of five questions, two of which require the meanings of obsolete and useless Scots words, and explanation of weird contexts which help to elucidate neither the character of the hero nor the action, but are merely extremely difficult sentences with no point. The author himself would in some instances be hard put to it to pass an examination set on one of his own works.

To prepare for an examination of this sort is not to inculcate a love and veneration for English literature, neither is our system of an English Literature Prize Examination held here yearly any better, though here there lies a grand chance. The subjects chosen for this year for instance could hardly be worse. The lowest forms in the school have to learn by heart the first 100 lines of "Mazeppa." (It is a pity the person responsible for this selection has never read Stevenson's Letters). One set in the upper

school have to learn by heart Wordsworth's "Intimations of Immortality" (not one of the boys understands it; Sordello would be as easy) and read the whole of "Childe Harold"; no one is allowed to tell the candidates that if they omit the first few thousand lines they will find Cantos 3 and 4 of interest. The only practical result of this examination will be to render the names of Wordsworth and Byron anathema, to be avoided ever after.

In lower forms the master is not so handicapped and can, if really enthusiastic, infuse a lasting appreciation of all that is good in our language. To do this, he will probably begin by telling the story of Beowulf, the circumstances in which it reached us, the Arthurian legend, tales of Robin Hood, Havelok the Dane, or let the form read aloud such a book as "Hero-Myths and Legends of the Celtic Race," showing (what is most needful at the present time) that we have entered into as great and glorious an inheritance, we have had as great forebears as ever the Greeks or the Romans had.

As the boy goes through the school he will be able to realise the pleasure to be got by reading aloud in class and acting with emphasis and reality "Scenes from Old Playbooks," as Mr. Simpson has so happily named his volume.

Boys of 14 are well able to appreciate the poetry and wonderful movement of action in the scene at Cæsar's funeral; they can laugh heartily over the Bottom scenes of "A Midsummer Night's Dream" if they are allowed to act without too much comment and only the minimum of explanation; they can enter into and feel the patriotic spirit of John of Gaunt's dying speech, or that of Henry V. at Agincourt; they can be stirred to a real sense of pity at the fate of Shylock; and in such extracts as they like they can learn portions by heart with avidity without thought of punishment or examination; it is only in the higher forms that their originality and interest are warped by the ever-present dread of an impending examination, which requires one work to be read so often as to become nauseating, and so carefully as to cause an intense hatred of its very name.

It is quite obvious that for all practical purposes (by which I mean the purpose of creating a desire for more in the mind of the boy and of strengthening and refreshing literary style by example), only one term at the most ought to be spent over one play and one novel. The other two terms should be given up to the reading of many plays and other works of poets and prose writers. It adds considerably to the interest if the life of the writer is told graphically to the boy in epitome, but an insurmountable (at present)

difficulty arises here, for few of the so-called English masters of to-day are sufficiently versed in the lives of our great writers to be able to recount them with any degree of accuracy to their form. This is perhaps one of the reasons why masters on the classical side prefer to use the English hour for purposes of Latin or Greek and modern masters indulge in repetition (invaluable in moderation, but why is verse invariably chosen?) hour after hour, week after week, thereby crushing all enthusiasm that might exist in a boy's mind to get to know more of the author's works.

It is obvious, on the other hand, that the converse method, that of giving the life of an author and a list of his works first, by no means rouses or stimulates the interest of a boy; a mere list of works with their authors is of no use at all. Consequently the history of literature, treated as such, may well be left until a boy's last year at school, or even until his school days are over. If he has been well grounded in the principal works of the giants of each age he will unconsciously have grasped the history of our literature without any formal handbook.

I emphasise the importance of a right training in English literature for I think that here more than anywhere else (in school hours) lies the master's chance really to reach the hearts of boys and hence in the true sense of the word to educate them; that is to bring out or to inculcate passion for all that is beautiful, noble, and true, a hatred for all that is ugly, ignoble, and base.

Mathematics is scarcely a subject for the soul—useful as it may be for one section of the brain—but English, as *The Manchester Guardian* says, is like morality; "it should pervade every lesson rather than be the subject of any one lesson."

I am inclined to go still further; the study of English is in its highest sense the study of morality, and a master who teaches it without uplifting the minds of his boys is not teaching at all; he has missed his vocation; he is wrecking rather than moulding character. The lives of great men as well as their works tend to become poems, as Milton would have them be, and even if sometimes their lives are inconsistent with the rigid lines laid down by convention, we all at least learn something valuable of the tangled skein of life.

It is to my hours spent in trying to inspire my forms with a love for Chaucer, Spenser, Shakespeare, Milton, Johnson, Burke, Wordsworth, and Stevenson that I look back with yearning and a feeling of ecstasy—something at last has been accomplished; a true chord has been struck—so much of one's time has to be wasted under existing conditions; but

the thought that some boys owe their imagination, sympathy, understanding of life, and high-souled conduct to a few hours spent in listening to an attempt (immature and crude, but passionately real) to show the real use of poetry and prose and the influence of a Shakespeare on a nation's history or, which is just as important, on an individual soul, buoys one up in the "Sturm und Drang" of existence and fills one with a serene eternal youthfulness and optimism.

SCIENTIFIC APPARATUS DESIGNED BY TEACHERS.

THE exhibition of apparatus and books held in connection with the annual meetings of the Association of Public School Science Masters has during the past few years become one of the most important events of the year for teachers of science; almost all the larger firms of dealers attend, and since they come not only from London, but from such distant provincial centres as Birmingham, Leeds, and Manchester, the visitor is enabled to see in one hall the latest designs in apparatus. That the firms can afford the expense of attending the meeting is doubtless due to the fact that the public schools give their science masters a freer hand in buying apparatus than is enjoyed by the masters in grammar schools; but, whilst the exhibition is of course primarily intended for the members of the Association, it seems a pity that means have not been devised for extending its value by attracting all who are interested in science teaching. We understand that a few years ago an attempt in this direction was made, and invitations to non-members were issued; on that occasion the experiment was not a success, but were it more widely known that the Association welcomes the presence of all ladies and gentlemen, we cannot doubt that many would avail themselves of a unique opportunity of comparing the wares of the various firms.

As usual, the centre of the hall was devoted to exhibits by members of the Association, and although these were not so numerous as usual there were many interesting items.

Two new forms of Joule's calorimeter were shown, one by Rev. W. Burton, Whitgift Grammar School, the other by Rev. S. A. McDowall, Winchester. The former consisted of a spiral of high resistance wire soldered to terminals screwed through the top of a small wooden frame which rested on the calorimeter; the chief novelty lay in the shape of the frame, which allowed the thermometer to be attached by means of a rubber band in such a manner that the thread of mercury was always visible.

Mr. McDowall's calorimeter consisted of a piece of brass tubing 10 by 3.3 cms.; one end of this was closed by a cork through which was passed a piece of a wooden penholder having a deep groove cut down one side and a more shallow spiral groove running its whole length. Into the groove is wound a piece of manganin

The Rev. W. Burton, Whitgift Grammar School, exhibited an improved form of the Tangent Model he introduced last year. This very simple instrument is illustrated in Fig. 3, from which it will be seen that a "needle"

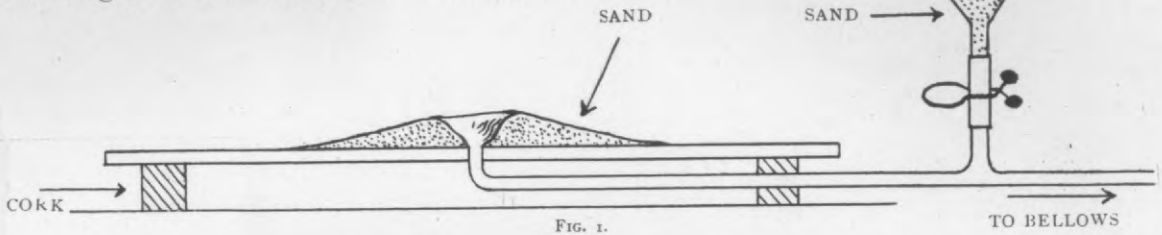


FIG. 1.

wire of 28 B.W.G.; the whole being varnished with shellac to prevent short-circuiting through the water. The top was closed by another cork carrying the thermometer. In consequence of its small size the rise in temperature is rapid, whilst the support given to the wire reduces the risk of breaking.

A sign of the growing tendency to treat geography in an experimental manner was found in the "Model Volcanoes" shown by Mr. Martin, Bradford Grammar School. These were built up on a flat board by successive eruptions of "scoria" (sand) and "lava" (wax); the sand was supplied through the funnel A shown in Fig. 1, and by means of a pair of bellows a current of air was forced along the tube, gradually building up a cone of sand upon the board; as soon as this had happened, the tube and bellows were replaced by a wide-mouthed bottle containing melted paraffin wax, and placed in a saucepan containing hot water, as shown in Fig. 2. Upon heating the saucepan the expansion of air forced the melted wax up the tube and into the sand crater. Presently the cone breached and the "lava" flowed down the side of the cone and over the surrounding plain. When the wax in the bottle was nearly exhausted it became mixed with air as it rose in the tube, thus causing jets of "lava" to be thrown into the air in the crater.

has four cords attached to it; by hanging weights to these it is possible to obtain any two couples acting on the needle. This model, which is made by Messrs. Pye, Cambridge, should prove of very great use to those teachers who still introduce their pupils to the tangent galvanometer and magnetometer at an early stage of their electricity course.

Mr. Douglas Berridge, Malvern, showed some new fittings

for the optical bench; in these an attempt was made to overcome the difficulties sometimes found in exactly measuring the distance from the wire gauze screen, and in using the

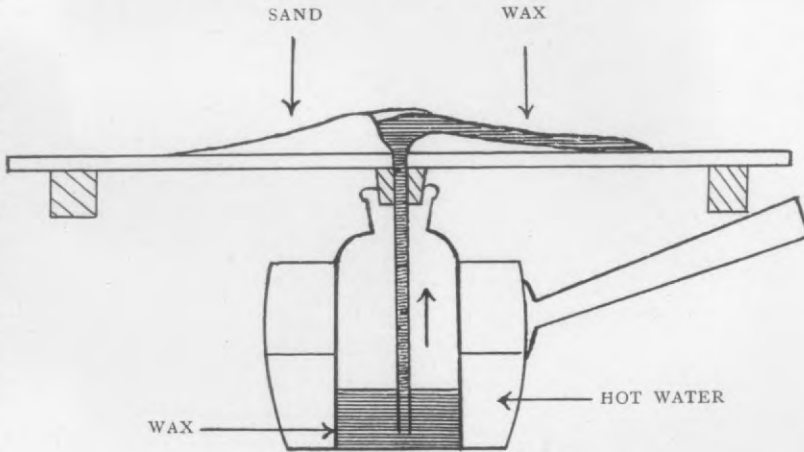


FIG. 2.

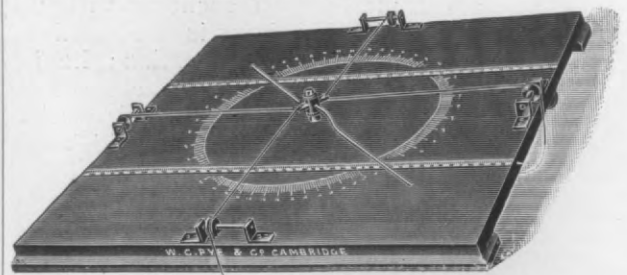


FIG. 3.

same fittings for lenses of different diameters. The wire gauze screen was made of a piece of thick zinc grooved so that the gauze could be soldered on to it flush with the surface; upon the back of this slides another piece of zinc provided with a

triangular opening. As will be seen from Fig. 4, the height of the image can be roughly adjusted. The lens and mirror holders are made of the usual pattern except that the

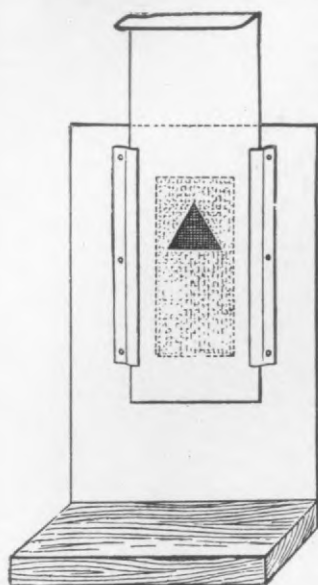


FIG. 4.

upper portion can be raised by means of a fine screw. The general appearance of the bench will be seen in Fig. 5, the piece of apparatus shown on the left of this being a pin-holder for allowing a pin to hang down, an arrangement of great use when finding the position of a virtual image by the method of parallax. The fittings are made by Messrs. Philip Harris, Birmingham.

Mr. R. G. Durrant, Marlborough, showed simple experiments for quickly finding the equivalents of copper and sodium by conversion into the oxide and chloride respectively: in the case of copper, a dry test-tube and plug of glass wool was counterpoised, and a weighed amount of the metal added; upon pouring nitric acid into the tube the metal

operation to less than one hour, the advantage should be very considerable. Our own experience is that the method gives very good results in the case of copper, but is less successful in the more difficult determination of the equivalent of sodium.

The two exhibits which perhaps attracted the greatest attention were models by Mr. Martin to illustrate reversible chemical changes, and by Mr. Talbot to illustrate the analogy between the flow of water in pipes and of electricity in wires. Mr. Martin's model consisted of two endless bands running on pulley-wheels. By a simple contrivance the speed of the bands could be altered at will; between them was placed a disc which rotated when the bands moved; if the speed of each band was the same the disc simply rotated round a fixed centre, but when the speed was different the disc moved to the right or left. Letting the motion of one band represent the rate of decomposition, that of the other the rate of recombination, the motion of the disc to right or left corresponds with the alteration in the number of dissociated molecules. Mr. Talbot's model contained a closed circuit of glass tubes through which water was forced by means of a small pump, the pressure of the water at different points in the circuit being measured by the head of water in the tubes connected with it. Most ingenious "water ammeters and voltmeters" were included. There can be no doubt of the interest excited by either of these models amongst the science masters who examined them; but we are not

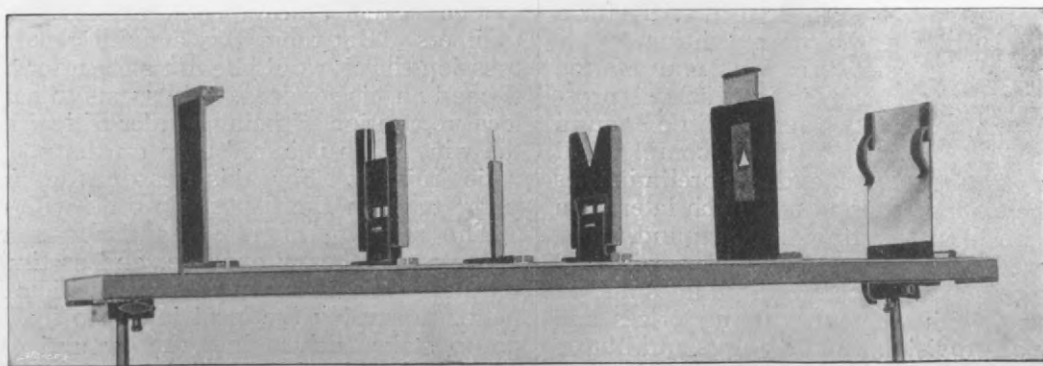


FIG. 5.

dissolved and it was only necessary to evaporate and ignite the contents of the tube. The equivalent of sodium was found in the same manner except that the metal was dissolved in alcohol and hydrochloric acid then added. Of course, the only novelty in the method is the use of test-tubes and glass-wool plugs in place of crucibles, but as it is claimed that this reduces the time necessary for the

certain that the average beginner would not find almost as much difficulty in following their action as in understanding the principles they illustrate.

Synopsis of British History. 105 pp. (Glasgow: Grant Educational Co.) 6d. net.—A home-lesson book in the form of blackboard notes on English and Scottish history to 1603, and on British history since, with tables and simple maps.

A SCHOOL CAMP IN FRANCE.

By J. H. HUDSON, M.A.

Salford Boys' Secondary School.

THREE years ago the Salford Municipal Secondary School for Boys conducted a fortnight's camp on the north coast of France. The cost of the experiment was so low as to permit about 100 out of the 300 boys in the school to avail themselves of the privilege. For rail and boat fares, as well as for maintenance for more than a fortnight, boys under fourteen years of age were charged £2 15s., between fourteen and eighteen £3, and those over eighteen £3 5s. This year the same school will repeat its experiment, but will charge an extra 5s. all round to cover increased food prices.

In both expeditions the Salford school has selected for its camp Diélette, a little fishing village on the west coast of the Cotentin, and facing towards Alderney. By road it is about fifteen miles from Cherbourg. The whole of this coast, from Cap de la Hague for fifty miles to the south—with its granite cliffs and sea caves, its wonderful stretches of hard sandy beaches, its old-fashioned villages, its deep and shady lanes, its apple orchards, and its old chateaux—is admirably suited for a boys' camp. The nearness to Cherbourg admits, too, of contact with French town life.

Before fixing on the position of a camp, an inquiry "on the spot" is always advisable. It is not wise to leave such apparently minor points as a proper water supply to the decision of French friends, however kindly disposed they may be and eager to prepare for a successful English camping expedition.

During the Easter vacation, two of the assistant masters at the Salford school prospected for a camp site. There is little enough time between Easter and July to complete all necessary arrangements, and the preliminaries should be embarked upon not much later than April. Besides selecting the ground, they interviewed the butchers, bakers, grocers, and greengrocers, both in the local villages and in Cherbourg, with reference to the prices and delivery of provisions. Milk, eggs and butter, and straw for the boys' palliasses, could be got most cheaply from the local farmers. The lowest quotations for meat—and most excellent meat it proved—were made by the butcher in the neighbouring market town of Les Pieux, five miles from the camp. The prices were lower than English prices, and included cost of delivery at camp.

As the camp continued, considerable modifications were made in the arrangements with the butcher. The fish brought in occasionally by the local fishermen, and the geese and

rabbits which the peasants placed on the village markets, provided excellent change of fare, and at a cheaper rate than the butcher's meat.

The prices quoted by the village grocers showed that they merely acted as middlemen for the larger firms in Cherbourg. These, although fifteen miles away, delivered at the camp every two or three days at no additional cost. But there were certain things which even these larger firms could not supply, and such things as treacle and oatmeal for the porridge, and tea, had to be taken from England. Then, too, the question of jam proved a rather formidable one. What English boy could think of tea without jam? Earlier inquiries brought nothing to light from the French grocers but expensive little glass jars of *confitures*. Ultimately, however, one of the Cherbourg dealers was able to supply jam from the Vosges district. It was packed in tin buckets, and looked unpromising, but the boys fell in love with it none the less.

The question might quite naturally be asked here whether educational ends would not be best served by doing in Rome as Rome does. To endeavour to copy French dishes may be a very laudable ideal. All the same, to upset an English boy's conservatism and fastidiousness in matters edible is to court disaster, not only in the culinary department of a camp, but in most other departments. The Salford masters who acted as the commission of inquiry had expected to obtain quite easily the services of a native cook, especially in a land which has a reputation for cooks. It is true the old French army cook existed in large numbers. But there was a quite general impression that it would be not altogether safe to depend on his services. He seems to have the local reputation of being fonder of looking on the wine when it is red than on the pot when it is boiling. For this reason the Salford party took an English camp cook with them.

The carriage of tables and forms would prove a very heavy expense, and as timber is comparatively cheap in France, it will be found better to employ the local joiner to fix boards on to stakes driven into the ground for the seats and tables in the dining tent. He will base his charges on the assumption of having the timber again at the end of the camp.

In this matter, as in the bargaining with the farmers, and with the *voiturier* who carried the Salford boys from Cherbourg to Diélette, had it not been for the help and influence of local French friends, the camp funds would have been seriously depleted. The Norman peasant is a fine estimable fellow, and gave a real welcome to the lads who sojourned with him. But he is cautious in his bargains, and

keeps an eye to the main chance. The Norse blood in his veins makes him kin with the Yorkshireman, and both have the reputation in matters of bargaining for being not in the least ashamed to act on the Yorkshire principle of *qui caput ille habet*.

The success of the camp depended very largely upon the kindly interest taken by many French educationists in the project. The Proviseur of the Lycée at Cherbourg, with several of his staff, assisted the party to get through the Customs with no delay at all. Neither the baggage nor the provisions were taxed. Not even a deposit for the bicycles, usually demanded by the Douane, was asked for. The cycles proved not only indispensable, but even a luxury, upon the magnificent roads of the Cotentin.

The Chief Inspector of Elementary Schools in the Département interested various elementary schoolmasters in the camp. They visited the camp frequently, and rendered valuable guidance in the arrangement of excursions. Where other schools may decide to hold similar camps, and have located their camp's position, an inquiry, addressed to M. le Ministre de l'Instruction Publique, Paris, will bring a most courteous reply, giving the names of such educational officials in the locality as would be most likely to give advice and help.

On their arrival the Mayor of Cherbourg received the Salford boys in the Town Hall, and regaled them with a feast. A brilliant array of bottles of wine proved rather disquieting, but a word in due season given quietly to the municipal attendants produced a plentiful supply of lemonade, and all went merry as a marriage feast. The Proviseur at a later date entertained the boys at the Lycée, and accommodated them overnight in the great school dormitories. The French and English boys fraternised readily, and in the mutual visits paid by the Salford boys to the Lycée, and by the Lycée boys to the camp, personal friendships were struck up, which in one or two cases culminated in boys remaining as guests in French homes after the rest of the campers had returned home. The good offices of the Cherbourg friends won for the English boys admission to the Arsenal—a most unusual privilege for foreigners—and a concert was given at the Casino in their honour, at which the boys had front seats gratis.

Everywhere the campers found that *l'Entente Cordiale* was something very much more than a mere political fiction. M. Tremblay, a distinguished French artist, who makes his summer residence near Diélette, had

only to hear of the proposed camp to offer, rent free, the finest field on the coast. The field contained the ruins of an old fort built by Napoleon I. to keep out the English. Strange irony! The English boys literally swarmed all over it, and with the most perfect goodwill of all and sundry French folk who came to witness the invasion.

The camp was never free from visitors from the commencement. No plan to obtain freedom of access for the English pupil to foreign sources was ever more effective than this camp. Every evening, and on Sundays in particular, the peasants of the neighbourhood came in hundreds, while on the day of departure from Cherbourg the whole town turned out *en masse* to give the party a send-off. The town bands played in the great square for two hours; the town hall was illuminated; the fire brigade led a torch-light procession to the quay-side; and the boys marched out of the town escorted by many thousands of French citizens, and an unofficered guard of French military and marine. It was a stirring time for every lad in the camp. They really lived; so they must have been educated.

THE TEACHERS' REGISTRATION COUNCIL.

THE Order in Council for which the teaching profession has been looking for some time has now been issued: it appeared in the *London Gazette* on March 1st. The Order follows very closely the suggestions in the White Paper recently issued by the Board and to which Mr. Runciman had added an instruction for the drafting of an Order.

The delay in its appearance seems to have been due to the necessity for some financial provision, and one of the particulars in which the Order differs from the White Paper is the addition of the clauses referring to finance. In these clauses the independence of the Council is secured; it may "provide such offices and appoint and employ such officers and servants as may be required for the purpose of their duties, and may pay . . . such remuneration as the Council think fit." That the money is forthcoming is shown by an announcement by the Board of Education, with the concurrence of the Treasury, that assistance will be given to the new Council so as to finance it for a period not exceeding three years from July 31st, 1912. The Council will thus be in a very different position from its predecessor; its income is assured, and it can spend it as it chooses.

The Council is to be representative of the teaching profession, and to it is assigned the

duty of forming and keeping a register. It is to consist of forty-five members, a chairman, and forty-four ordinary members; of the forty-four, eleven are to be appointed by the Universities, eleven by the Headmasters' Conference and the other associations representative of teachers in secondary schools, seven by the National Union of Teachers, two each by the Head Teachers and the Federation of Assistant Teachers, and eleven by a number of associations representing teachers in technical institutions and specialist teachers.

The chairman is to be elected by the Council from outside its own number. The ordinary members are to be appointed before July 1st this year. The Board will then summon the members to a preliminary meeting. If the bodies named do not make an appointment within the time specified, then the Council at its first meeting is to nominate a suitable person to represent the interest concerned.

The Council is to appoint ten committees, each representative of one of ten kinds of technological or specialist teaching: technological teaching, art, music, commercial subjects, domestic science, handwork, gymnastics, deaf, blind, and training of teachers; the committees are to consist of the member of the Council representing that particular branch of teaching and such other people as the Council may select, provided they are engaged or have recently been engaged in the kind of teaching concerned. To these committees the Council is to refer the conditions on which it is proposed to register teachers engaged in those branches of the profession. Provision is made for the election of the Council on the same plan at intervals of three years and for the filling of casual vacancies. Any application by the Council for the revocation or alteration of the Order or for any addition to it is to be made at least six months before the expiration of the first or any subsequent triennial period.

It now remains for the Universities and the associations named to nominate representatives who will form a Teachers' Council; its first duty is to form and keep a register, but once a really strong Council is established its influence cannot but be felt throughout the teaching profession. Were its work to begin and end with the formation and maintenance of a register, the mere existence of one body truly representative of the whole profession, at whose meetings every kind of teacher, whether of the oldest University undergraduate or of the youngest infant at the kindergarten, feels that his view is put by the best man or woman who can be found for the purpose, must make for the efficiency of our educational system and the good of the nation.

CONTINUATION SCHOOLS.¹

THE evening continuation school has come into existence as the result of the larger views of education that have marked the last twenty years. The evening school out of which it grew was simply an institution to provide means by which elementary instruction might be given to those who had failed to receive it in the day school, and belonged to a period before compulsory primary education had saved the community from a large proportion of illiterates. With the spread of compulsory education, the need for the evening school of the old type became gradually less.

One of the most marked results of a universal primary education has been the ever-extending prevalence of the idea that the education of the primary school is insufficient.

The modern continuation school is the product of—(1) the insufficiency of any education that terminates at the age of 14 years; (2) the need for building on the foundation of primary instruction an education for adult vocation and responsibility; (3) the sense that an element of national weakness exists in the aimless drifting of young people between the age of 14 and the age at which they settle down to a definite career; and (4) the failure on the part of many to acquire any wage-earning knowledge and skill in those years when their minds are most receptive and their hands best adapted to acquire manipulative skill.

On the one hand these questions stand related to the question of the unemployed and the unemployable, on the other hand they are related to the larger question of the conservation of the capacities of the nation, the putting to the best use the intellectual capital of the country, the making most effective whatever skill and power exists in its youth, the production of what has now come to be popularly described as national efficiency.

Many boys have left school as soon as the law permits them, and, tempted by the comparatively high wages offered, have entered into employments that demand no special skill, and at the same time give no training for any permanent occupation. These boys find two or three years later that they must look for work of a more permanent kind, but also discover that they have no qualifications to offer to an employer. It is then that the need for further instruction is felt, and it is to prevent the boy from stepping into the unskilled labour market that the continuation school is established.

The continuation school to be really effec-

¹ From a report on Continuation Schools, by P. Board, M.A., Director of Education for New South Wales.

tive must deal with large numbers. It is not made an integral part of the State system simply that the few with ambition to excel in their calling or with a desire for self-improvement may have the opportunity to gratify their wishes. The reason is a much wider and deeper one. The continuation school arises rather out of the utter inadequacy of any education which terminates at 14 years of age to fit the youth of the country either for the demands that are now made upon them under the existing arrangement of industry, or for the social and civic demands that are made upon them as members of a democratic State. It is felt that the State cannot afford to leave a large percentage of its population with no more instruction and training and preparation for the responsibilities of life than is got in the primary school, with the addition only of the unorganised and haphazard training that is picked up in the ordinary avenues of industry and business. The State cannot afford merely to cater for the few whose commercial or trade ambitions lead them to self-improvement, while the many receive nothing more than the foundation laid in the elementary school. Commercial considerations demand more than this. Industrial conditions demand more. Above all, the need for an intelligent citizenship demands more.

Where there is no continuative education available, the recognition of the need for it is seen in the constant demands that are being made upon the primary school. The primary school is being called upon to turn out boys and girls at the age of 13 or 14 years with the mental equipment and fitness for citizenship of the adult, while, at the same time, it is forgotten how very limited are the intellectual capacity and outlook and basis of experience which are possessed by the ordinary boy and girl of 13 years of age. It frequently occurs that the primary school is saddled with work that should only be attempted with boys and girls of much more mature years, but which is attempted there because it appears to be the last chance that will offer for these young persons to participate in that kind of instruction.

If the primary school does its legitimate work, that is, gives a range of instruction and training suitable to the mental capacities and experience of children up to the age of 13 or 14 years, it will have laid the foundation for that further education that is suitable for those years of rapid mental development and increasing mental grasp and widened experience that follow after the fourteenth year. But when the primary school has done its work, whether it is the work suitable for its pupils or the unsuitable work that may be imposed upon

it, the boy or girl who gets no more is insufficiently educated. It is the recognition of this fact that lies at the root of the institution of the compulsory continuation school.

The interests of the whole community now demand that the adolescent should be educated for a vocation and for citizenship, just as forty years ago the same interests demanded that every child should receive the elements of education to save him from illiteracy. The extensive use of machinery in industry, the value that is attached to industrial skill, the unfortunate position in which our social arrangements place the unskilled, these have imposed one obligation upon State educational systems; the adoption of universal suffrage has imposed another. Neither of these obligations can be discharged by the elementary school, however perfect it may be, owing to the natural limitations of the capacities of children up to 14 years. Both these obligations demand continuative education—one an education for vocational skill and knowledge, the other an education for citizenship.

Another aspect presents itself in considering the need for a school which will take hold of the pupil as soon as he leaves the primary school. The demand is constantly heard for technical education, but it is a demand which is generally voiced by those who do not want it for themselves. Except in comparatively small numbers, those who really need it do not ask for it. The Education Department is frequently urged to provide technical education (usually a technical "college") in large country towns of this State. But these requests come from the mayors and leading men of the town who realise the importance of some vocational training for the youth of their district, whilst unfortunately the young people themselves show no desire for it. An indication of this has been seen in the small success that has attended the formation in country towns of classes for which at first there appeared to be a demand.

The fact is, boys of 17 years of age and over, who have been away from school influences for two or three years, lose the habit of study, and do not desire, nor do they feel themselves prepared for, instruction of a strictly technical character. They think they can get along very well without it. A mere elementary education, which terminated at the earliest possible date, has lost its effect upon their ambitions by the lapse of two or three years during which they earned a fairly high rate of wage. Unless this gap is filled, any widely extended system of trade or technical education is practically impossible. The technical school can only be built upon the continuation school. If, as soon as the boy leaves the

primary school, he is caught by the continuation school, and he finds in it some instruction which evidently suits his needs and stirs his ambitions and makes him realise his powers, the chances are then all in favour of his taking up later the more specialised work of the technical school. If not, he drifts.

The continuation school, therefore, is designed to give that instruction and training which the elementary school should not give, which will lay the foundation for the more advanced technical or commercial training.

PERSONAL PARAGRAPHS.

MR. F. H. CHAMBERS, until last year headmaster of Lincoln Grammar School, died recently at the early age of forty-four, while staying at St. Remy, where he had gone for the benefit of his health. He was a mathematical exhibitioner of Balliol College, Oxford, and became a master at Charterhouse. From there he went to Lincoln in 1901. He was an enthusiastic and an inspiring teacher, who will be remembered, not only by his old pupils, but by the inhabitants of Lincoln and the neighbourhood, who recognised in him an educational expert with the highest ideals of education.

* * *

MR. W. L. HETHERINGTON, late Fellow of Trinity College, Cambridge, first class Classical Honours and a wrangler, died on February 17th, aged sixty-six. For many years he was a master at Sherborne School, where he had a house. He afterwards became classical lecturer at King's College, London, and also at Scoones', where he must have taught generations of diplomatists.

* * *

THE REV. H. C. ROGERS, who recently died in a nursing home after a severe operation, was from 1872 to 1876 a master at Reading; he then became headmaster of St. Michael's College, Tenbury; after about three years he took orders, and was appointed chaplain of Christ Church, Oxford, and headmaster of the Cathedral School.

* * *

THE new principal of the Manchester Municipal School of Technology is Mr. James Clerk Maxwell Garnett, formerly a Junior Examiner in the Elementary Education Branch of the Board of Education. He is a son of Dr. William Garnett, educational adviser to the London County Council, and an Old Pauline. At Cambridge he was Fellow of Trinity, a wrangler in the first part of the Mathematical Tripos of 1902, first in the second part in 1903, and Smith's Prizeman in 1904.

MRS. MARGARET BYERS, the principal of the Victoria College, Belfast, died in that city in February. She founded the college in 1859, when it was a secondary school. Mrs. Byers's hard work for the inclusion of girls in the Intermediate Act was crowned with success; and when the Royal University first admitted women, the degree of LL.D. was conferred upon her by Trinity College, Dublin, in recognition of her work for the women of Ireland. She was also a member of the first Senate of the Queen's University at Belfast.

* * *

MR. HOWARD, until four years ago his Majesty's Chief Inspector of Schools in the York district, died recently at Scarborough, aged sixty-nine. He was very popular among educationists, especially among teachers. He was an authority in the antiquities of York, and a successful lecturer.

* * *

MR. J. C. N. WHITE, the Chairman of the Governing Body of Birkbeck College, is to be presented with his portrait to mark the completion of fifty years' connection with the college. The portrait, which is being painted by Mr. Seymour Lucas, will be ready for presentation early in the summer.

* * *

DR. JAMES CLYDE, formerly classical master at Edinburgh Academy, died on February 17th. Before going to Edinburgh he was headmaster of Dollar Institution. Among many of his pupils who have distinguished themselves is Lord Haldane.

* * *

MISS ROSA MORISON was the lady superintendent of women students at University College. She began her educational career at Queen's College, London, of which she was an Associate and afterwards a tutor. With Miss Eleanor Grove and other friends of women's education, she founded College Hall as a residence for the students of the School of Medicine for Women and for women students of University College. "They presided," writes a correspondent to *The Times*, "over College Hall for eighteen years, from 1882 to 1900, Miss Grove in the capacity of principal, and Miss Morison for nearly the whole period in that of vice-principal. There, by their joint influence and strong personalities, they created the true collegiate spirit. Miss Morison's sphere of activity was enlarged when, in 1883, on the creation of the office of Lady Superintendent of Women Students at University College, she was elected to that post. Her policy throughout was to act as the guide and friend of the university students, and to promote the sense of responsibility and

self-government that should characterise them."

* * *

PROF. CHRYSTAL is to be succeeded in the Chair of Mathematics at Edinburgh by Dr. E. T. Whittaker, F.R.S., Royal Astronomer of Ireland. Prof. Whittaker was educated at Manchester Grammar School and at Trinity College, Cambridge. He was second wrangler in 1895, and was placed in Class I of Part II in 1896. He was afterwards elected a Fellow of his college; he was Smith's Prizeman in 1907. He was a lecturer in mathematics at Trinity, and later a university lecturer in mathematics.

* * *

THE Governors of Cranleigh School have accepted the offer of one of their number, Sir Charles Chadwyck-Healey, K.C., to present to the school a laboratory. The work is to be put in hand at once, and is expected to cost about £4,000.

* * *

MR. A. L. FELKIN, who recently resigned his appointment as an Inspector of Schools, has become a member of the Advisory Committee of the Avery Hill Training College. Mr. Felkin was born on the outskirts of Nottingham, educated at Wolverhampton and Magdalen College, Oxford, where he obtained a first in Moderations and a second in Greats. He was for some years senior master at the Royal Naval College, Eltham.

* * *

BEFORE these paragraphs appear, the meeting of the teachers in the secondary schools in the south of England will have been held in the great hall of the University of London. Many well-known educationists are expected to take part. Mr. Acland, who was at Rugby and Christ Church, Oxford, has been a prominent educationist for many years. He was Minister of Education, and it was on a motion of his that "whiskey money" was first devoted to education. He, too, first called the attention of the House to secondary education some twenty-five years ago. He was one of the leaders, if not the leader, of one of the most progressive Local Education authorities, and is still the Chairman of the Consultative Committee. He takes a keen interest in the present problems of the teaching profession—Pensions and the Register. His name, in fact, is one of those that have been mentioned in connection with the chairmanship of the Teachers' Registration Council, and there is, perhaps, no one who could carry out the duties of that office so well as he could.

* * *

MR. LYTELTON was an Eton boy and an Eton master before becoming its headmaster—

with intervals in the former of which he was at Trinity College, Cambridge, and a master at Wellington, and, in the latter, headmaster of Haileybury. He played cricket for Cambridge, and football (Association) for England. Recently he has shown himself one of the most, if not the most, progressive and liberal of the headmasters of the great public schools. He has not held aloof from present-day problems; he dealt with the overcrowding of the curriculum in "Schoolboys and Schoolwork"; in 1910, when the Headmasters' Conference met at Eton, he spoke on the salaries and pensions of assistant masters with such force that the Conference unanimously agreed to co-operate in improving the one and obtaining the other. He has set his colleagues an excellent example, as his appearance at the meetings at Manchester and at the university show. At the Committee of the Conference and at such committees as I have seen him, he has impressed me as being not only a master, teacher, and practical educationist, but also as a man and a statesman.

* * *

OF the other speakers perhaps the best known is Mr. T. E. Page. Recently retired after being sixth form master at Charterhouse for over thirty-seven years, he is harder worked than ever before; for, as he has said, whenever there is anything to be done or anything to be said, it is "Page, you have nothing to do; come and do this, or go and say that." No wonder, for he is not merely a good speaker, he is an orator; for some time past no educational meeting has been complete without his commanding presence and his wise witticisms.

ONLOOKER.

THE EDUCATION OF YOUNG BOYS.¹

By SHIRLEY GOODWIN, M.A.

Rector of the High School of Glasgow.

It is the merest platitude to say that the conditions of life are in a state of continual change; that day by day and year by year they oscillate as a pendulum swings. In no activity of life is this ebb and flow more marked than in that much-maligned and little understood art which we so glibly call education. In the last hundred years we have seen the pendulum swing from one extremity of its path to the other. There was a day when a headmaster of Eton laid it down as his duty that he was there to teach Greek grammar and not morality; when education meant simply the study—generally painful—of books. Then came a change, and in the latter years of last century the only boy of note in school was the mighty athlete; when headmasters asked of a new boy "can you play," and scholarships were awarded to budding internationals. Both systems produced good men,

¹ From an address delivered recently at Glasgow.

both were thorough in their way—and both were wrong.

Once more the pendulum is swinging. If we spend our lives on a see-saw, we shall become addle-headed. Can we check that swing, and find a stable seat from which to go forward instead of making a mere *allée et retour*. Let me, however, point out that, though we say the systems of our forbears were wrong, they deserve all honour, because it is by their failure that we may hope to attain to something better.

I hold it truth, with him who sings
To one clear harp in divers tones,
That men may rise on stepping-stones
Of their dead selves to higher things.

It is by our failures that we succeed, and by our mistakes that we learn the truth. Lack of success comes merely from the wrong appreciation of failure. To us defeat should not be a crushing disaster, but an indication that is to lead us to future victory. But—someone will say—we have swung all these years; you say in one breath the thing was good, in the next you condemn it as disastrous. What sort of argument is this? I maintain that I am right in both breaths. While systems of education changed, conditions of life did too, and, though we go back to the educational methods of a hundred years ago, we cannot go back to the conditions of life of a hundred years ago. People do not realise that the greater part of school life is spent at home; and that is the whole point.

This point is exemplified in the argument one so frequently hears, "Our fathers had no games at school, especially compulsory games, yet turned out finer men than you can with your new-fangled ideas." This is in the main true, but the promulgators of this argument forget the point I have just made; that the conditions of life were entirely different. In our fathers' time, the day of the city was not come. People lived, perhaps less sanitary, but certainly more healthy lives; their diet was simple, their discipline Spartan. Another point, too, to remember is that not all survived. Life throughout was more strenuous. These conditions are changed entirely. This is the day of the city, the herding together of men. We live less healthily. I am told that in the tunnels of the Twopenny Tube in London there is more ozone than in the air of the country; and that is very typical of our present life. It may be more sanitary; it is certainly less healthy. Instead of walking to school the boy goes by train or tram; instead of porridge he has some made-up mess; instead of getting a good smacking he not infrequently smacks his parents. Above all, we are so safeguarded by hospitals and doctors that everyone has a chance. To-day, the strongest go to the wall. In every way we are softer—morally, mentally, and physically—and yet we propose to return to the sterner educational methods of our fathers, all mental and no bodily work, *without* the basis of physical and moral ability on which they worked. If we did it wholeheartedly, though we should kill many, it might be for the ultimate good of the race; but we do not. In former days a boy was given a text, or a problem—if he was lucky, was

also given a rough outline of the method of working—and was left to sink or swim. This may not have produced many scholars, but it did produce some, and sound ones. Nowadays the teacher does the work and the boys criticise. Our text-books are emasculated, our problems solved except for the letters Q. E. D.

We atrophy the brains of our children by preventing their thinking. We profess to teach them in half the time by showing them results—not reasons.

At this present time there are few people who do not look on the baits of the get-rich-quick company promoter with derision and contempt, yet there are still fewer who do not only wink at but aid and abet this method in education.

Where then shall wisdom be found? We have decided that both extremes were faulty; we cannot return to the one, as we have not the material to work on; we cannot return to the other, because the battle is not wholly to the strong. We need brains more than ever, but there is a still more crying need for bodies to maintain those brains. We have endless shibboleths: "A sound classical education," "a sound commercial education," "physical training," "games." Fine, sounding, words. What do they denote? The first generally seems to mean a knowledge of Latin and Greek; the second, arithmetic; the third, plenty of apparatus in the gymnasium, which as often as not is never used; the fourth only too often is a plausible excuse for curtailing the period during which one is responsible for the boys, and getting rid of them rather sooner than is usually the case.

No man who desired to attain eminence as a rose-grower would dream of devoting himself to the cultivation of a flower with only one side. Nature and mankind alike would drive him away with contumely. Yet in education we are growing our flowers lopsided, and patting ourselves on the back for it. It is a common belief that a boy must "specialise"—need only study that subject which is to earn his bread and butter. No one subject or category of subjects will ever train a man. No man will ever be a true artist who studies only drawing. No man will ever be a true athlete who studies only athletics. It is the things we forget that will cause us to be remembered in the hereafter. We incline far too much in the latter-day schools of thought, if thought it can be called, to regard ourselves as separate entities, and reasoning along these lines to consider that the whole aim and end of a boy's life in school is to enable him to get a shilling or perhaps two shillings a week more than his fellows. Yet though apparently we are to live as units, to strive to do something great is not what is aimed at, but merely a selfish, petty, and obscure mediocrity. We are tending to become such people as Cassius spoke of:

We petty men
Walk under his huge legs and peep about
To find ourselves dishonourable graves.

The crying need of our education of to-day is to teach people to live as a community, to realise that the end to be striven for is not individual but national

well-being, and that to attain this end the individual must sink his personal inclinations; that individuality means, not retiring like a hermit crab into a whelk shell, but devoting the pick of one's brains and the very essence of one's entity to the common good. Forgive me if I quote from a purely English poet :

"What have I done for you, England, my England?
What is there I would not do, England, my own!"

It is this sentiment of devotion to the community that ought to inspire every one of us: first applied to school, then to one's own country, thirdly to one's Empire, and then to the world. So far, we have played the part that was intended for Balaam, and have cursed rather than blessed. We have shattered our idols, and stand among the ruins, wondering what we shall worship. Let us try, and out of these ruins build up a new idol. We must work—we need brain and body—what work shall we do? We might start our rebuilding scheme with a sort of syllogism. The brain is part of the body. The functional ability of the brain depends on the structural value of the brain-tissue. In other words, the functioning of the brain is correlated to the manufacture of good brain-tissue. This structure of brain-tissue can be built and developed by physical development of body. Therefore the functional ability of the brain is in exact ratio to the physical development of the body. Instead of setting brain and body at variance, as we too often do, let us make them work together; instead of thinking merely of practical values, let us think of moral values also; instead of an inert machine, capable merely of a narrow task, let us make a *man*, four-square to all the winds that blow.

Rome was not built in a day, and we have condemned the idea of attaining educational efficiency by the lift. It follows, therefore, that we have committed ourselves to a building that will take years to erect and that must be sound in every detail.

If any of you have seen the brain of a new-born child, you will have been struck with the absence of the wrinkles that mark the brain of civilised fully-developed man. They are all there, potentially, like the sensitised film on a photographic plate, but, so to speak, unexposed. We literally pick up wrinkles as we go along—every fresh piece of knowledge leaves a scar. This being so, we must beware lest we try to do too much. If we try to put on our child's brain all the wrinkles at once we shall kill him. Also, seeing that we have a blank mass to work on, we must be very careful in our manipulation—every little mark, unintentional as well as intentional, will show. We are apt to give a child far too much to think of in our endeavour to make things easy—brushwork, stick-laying, paper-tearing, bead-stringing—all sorts of unprofitable things. I do not believe that a child's brain can recognise intricate things; I am very doubtful if a child can appreciate more than the primary colours—some can only distinguish between light and dark. We need few things, and those presented in few ways.

It is enough for a child, when it first comes to school, to learn its letters and figures, and to be allowed to use its eyes and ask "Why?" We make

things too easy for the boy, too difficult for the child. From this foundation we can proceed to the gradual formation of language and the use of figures. One element especially I should like to see more of—story-telling instead of story-reading. For a child to read a story with pictures is bad—it stereotypes the imagination. If you give a child a book of pictures to read, instead of picturing the story to himself, making, so to speak, a mental cinematograph, the child simply waits for illustrations, and these illustrations become authoritative. Thus, suppose you have a sentence, "The princess sat on the table." If there is no illustration the word "table" calls to the child's mind the idea of table, not one table in particular, but all the tables he has ever seen, and they are all equally real tables to him, but, if the book is illustrated—and we have to remember that the illustrations of most fairy stories are very grotesque—table becomes to that child the thing that he has seen in the picture, and the tables of real life are not tables in themselves but substitutes. In other words, if you give a boy a story to read with illustrations you are making the real life unreal, and teaching him to regard the part as the whole.

Nature-study, too, I should like to see—not the cutting-up of a flower in the class-room and maligning it with strange names, but the day in the country when the teacher *sat still* and let the children ask. We *tell* our children too much; a child likes to ask, and asking develops the brain, while telling does not. By these means we shall obtain the quick brain, and then at the age of ten a child could begin a foreign language; for his stories have brought geography, and geography foreign peoples, and he will ask how they talk, and language will be fun and a new play. Here comes in the vexed question—which language? I prefer French. It is most like Latin, and therefore will take off the strangeness of Latin, and is the language the child comes most in contact with. Geography and history, as we see, have been called for by stories the child has heard; and so, until the child is twelve, we have his brain-work fairly settled, and to a large extent his body-work. What a child needs more than anything else is imagination. A child has imagination, but our present methods are killing it.

Cultivate imagination and all else is easy. The teacher should make the child see pictures, not show them. The nature-study will help his body, directly, and the story indirectly—a child always acts what interests it. For the actual body training we need little. It is best to leave a child alone until he is certainly ten or eleven. He will find his own exercises if we let him, and they are best. Give a child imagination and scope and he will never lack for exercise.

We have also developed the moral side of our boy's character. If we pick our stories well, he will learn virtue instinctively. To give a set lesson on total abstinence, or honesty, is a crime—a boy should, so far as any rate, do a thing or not do it, not because it is "right" or "wrong," but because it has never entered his head to do otherwise—he wants to be like so-and-so, and not so-and-so, in the story. In

other words, virtue must be positive, not negative. One of the worst and most universal mistakes made in the name of education is the continual appeal to evil. A child does not do wrong by nature. To try to teach a child virtue by painting in vivid colours the horrors of hell, of delirium tremens, or vile disease, of prison and the gallows, seems to me as foolish as if one were to demonstrate the fragility of a baby's anatomy by throwing it out of a fifth-floor window. Surely one will achieve a better result if one imagines the glory of victory instead of painting the horrors of defeat. I remember a small child once performing what was really a rather heroic action, and afterwards, because I wanted to find out her motives, I asked her why she did it; as a matter of fact, she could have very easily evaded trouble with a lie. She said, "Well, I should have felt dirty if I didn't." It struck me as an answer which showed nearly perfect virtue. She had done right, not because it was "right," or "wrong," or because she was afraid of punishment, but because it seemed the only conceivable way. That is what we want—and must get.

A HOLIDAY COURSE EXPERIMENT.

SUCCESSFUL as the London University Holiday Course for foreign students has been since its inception in 1903, it has always been a matter of regret that so small a proportion of teachers in French schools have been able to avail themselves of it. The French school year closes at the end of July, before which date French teachers find it difficult to obtain special leave for a course taking place during that month. This fact lends additional interest to the experiment that is to be tried in Ramsgate, where an Anglo-French Holiday Course, under the auspices of London University, is to be held for three weeks in August (8th to 28th).

It is noteworthy also that an English seaside resort should be so alive to the probable attractive power of educational facilities that, in the first place, the suggestion that the course should be held came from Ramsgate itself, and, furthermore, that a fund to guarantee the University against loss has been raised in the town without difficulty.

The course will be under the general direction of Prof. W. Rippmann, director of the London University Holiday Courses, and the assistant director will be Mr. H. C. Norman, headmaster of the County School for Boys, Ramsgate, and director of further education in the Isle of Thanet. As its name implies, the course is to be open to teachers of English in French schools, and to teachers of French in English schools, and, in framing the programme, a special effort will be made to provide such instruction as will be helpful in class-room work. To this end the phonetics of both languages will bulk largely in the syllabus, and will be in the capable hands of Mr. Daniel Jones, lecturer on phonetics at University College, London, and joint editor of *Le Matre Phonétique*, who will deliver a daily lecture followed by phonetic dictations.

Other courses of lectures are: "Methods of Modern

Language Teaching," by Prof. Rippmann; "French Literature" (based largely upon the syllabus of the London B.A. Honours Examination in French), by Prof. Vandaele, of the University of Besançon; and "English Literature" (mainly Lamb and Stevenson), by Mr. Norman. Other short courses and single lectures will also be arranged. In addition, there will be daily classes in reading phonetic texts and in conversation, with occasional excursions to neighbouring places of interest and evening lectures.

With such a programme it would seem extremely probable that a considerable number of teachers will avail themselves of the opportunity to combine a very useful three weeks' work in their special subject with a holiday on the Kentish coast, with the "Garden of England" as its *hinterland*. To those especially who have had reason to be disappointed with their search for phonetic teaching in foreign holiday courses the prospect of getting thoroughly sound instruction in that all-important subject should be most alluring.

Certificates of Attendance and Certificates of Proficiency in Spoken English or French will be granted to satisfactory students by the University of London. The syllabus, with full information as to fees, accommodation, &c., may be obtained from the Assistant Director, Ramsgate Holiday Course, County School, Ramsgate.

CAMBRIDGE UNIVERSITY LOCAL EXAMINATIONS.

SET SUBJECTS FOR JULY AND DECEMBER, 1913.

RELIGIOUS KNOWLEDGE:—*Preliminary*.—(a) St. Mark, or (for Jewish students only) 2 Kings, i.-xvii.; (b) 2 Samuel, v.-xx.; or (c) the Church Catechism.

Juniors.—(a) St. Mark, or (for Jewish students only) 2 Kings; (b) 2 Samuel; or (c) The Acts of the Apostles, i.-xv.; or (d) the Church Catechism, and the Offices for Baptism and Confirmation in the Book of Common Prayer.

Seniors.—(a) St. Mark, or (for Jewish students only) 2 Kings; or (b) The Acts of the Apostles, i.-xv.; (c) 2 Samuel; or (d) Philippians and 1 Peter; or (e) the Preface to the Book of Common Prayer, "Concerning the Service of the Church," "Of Ceremonies," and the Order for Morning and Evening Prayer; or (f) the Church Catechism, and the Office for Holy Communion in the Book of Common Prayer.

ENGLISH LANGUAGE AND LITERATURE:—*Preliminary*.—(c) Scott, "Marmion," cantos i. and vi.; or (d) Kingsley's "Heroes."

Juniors.—(b) Shakespeare, "Macbeth" or "As You Like It"; or (c) Scott, "Marmion," including the introduction to canto i., but omitting the introductions to the other cantos; (d) a paper of questions of a general, not a detailed, character on Scott, "The Talisman," and Milton, "Comus."

Seniors.—(b) Shakespeare, "Macbeth" or "As You Like It"; or (c) Chaucer, "The Knight's Tale"; (d) a paper of questions of a general, not a detailed, character, on Shakespeare, "Hamlet," Milton, "Comus," and Scott, "Old Mortality."

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. Or (b) Outlines of the History of the British Empire from A.D. 1784 to A.D. 1878. Or (c) Outlines of Roman History from B.C. 266 to B.C. 133.

(d) Geography. Outlines of Physical Geography, and the British Isles with one of the following regions: Europe, Asia, America south 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. Or (b) History of the British Empire, as for Juniors. Or (c) Greek History from B.C. 510 to B.C. 432.

(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), Africa.

LATIN :—*Preliminary.*—Ritchie's "Fabulae Faciles," Part III. ("The Argonauts" and "Ulysses") (Longmans).

Juniors.—(a) Caesar, "De Bello Gallico," IV., 20-36, V., 4-23; (b) Caesar, "De Bello Gallico," V., 25-58; (c) Virgil, "Aeneid," VIII., 1-368; (d) Virgil, "Aeneid," VIII., 369-731. Any two of these four to be taken.

Seniors.—Caesar, "De Bello Gallico," IV., V., or Cicero, "De Senectute"; Virgil, "Aeneid," VIII., or Horace, "Epistles," Book I.

GREEK :—**Juniors.**—(a) Xenophon, "Anabasis," VI., 1-3; (b) Xenophon, "Anabasis," VI., 4-6; (c) "Scenes from the Antigone" (Clarendon Press), 1-367; (d) "Scenes from the Antigone" (Clarendon Press), 368-711. Any two of these four to be taken.

Seniors.—Thucydides, I., 24-87, or Herodotus, VIII., 1-90; Homer, "Odyssey," V., VI., or Aristophanes, "Plutus."

FRENCH :—**Juniors.**—Malot, "Remi en Angleterre" (Pitt Press).

GERMAN :—**Juniors.**—Grimm, "Twenty Stories," omitting "Aschenputtel" and "Der goldene Vogel" (Pitt Press).

The Making of England and the Empire. By M. E. Hancock. 125 pp. (Stead's Publishing House.) 4d. net.—This completes Miss Hancock's series, the period covered being from 1714 to 1910. As in the previous numbers, there are pictures, questions, and anecdotes, but not much "history," in the serious sense of the word.

HISTORY AND CURRENT EVENTS.

THERE ought not to be any difficulty nowadays in getting our elder pupils to understand the conflicts between Henry I. and Anselm, Henry II. and Becket, or between Henry VIII. and the Pope. If only there were no examinations in "periods" to consider, the relations of Church and State in the Middle Ages, and indeed to the end of the seventeenth century, should form one subject and be treated together. And since the Revolution of 1789 those relations have again become increasingly important. Especially is this seen to be the case in the relations between the lay States of Europe and the Europeanised world, and the great international society which is governed from Rome. The British Empire is just now feeling the strain of possible conflict between these two powers in Ireland, but more still in Canada. What is marriage? Is it merely a "spiritual" matter, and therefore under the complete control of the Church, or is it also a "lay" contract involving questions of property? Let those who are discussing the "Ne Temere" be fully persuaded in their own mind on this point.

ON February 9th and 10th last, Christendom lost three of her thinkers and workers—Andrew Fairbairn, Charles Loyson, and Joseph Lister, representatives, respectively, of Scotland, France, and England. The first two were theologians and Churchmen. Fairbairn was practically the founder of Mansfield College, Oxford; Loyson is better known under his assumed name of Father Hyacinthe; Lister was ennobled for his work in physical science. The first two may not be so well known: their lives were devoted to the interests of their own section of Christendom; but Lister's name should be world-wide known, since his services were rendered to humanity at large. Surgery is great, but the prevention of the after-effects of ignorant surgery is greater. Yet a thought occurred to us as we read in one newspaper the brief biographies of these three. What would have happened to them if (grant the "if") they had lived five hundred years ago. The two theologians would have been duly burnt for their heresy, and the scientific inquirer might have met the same fate for presuming to pry into "the unsearchable things of God." We have advanced a little.

COAL—OR, as we generally prefer to call it, with that want of logical thought that distinguishes us from our neighbours across the English Channel, coals—is the uppermost thought in all our minds as these lines are being written. We are hoping that by the time they are read the "fear and dread" which are upon us will be a thing of the past. Sea-coal our forefathers in the south of England called it, because, in contradistinction to the combustible of more recent origin which they had been used to burn, this product of geological ages came to them by way of the North Sea and the estuary of the Thames. Those forefathers did not like "sea coal," and would, if they could, have prevented its use lest it should destroy the beauty of London and thirst-allaying Thames. How

wise they were may be judged, if in no other way, by looking at London's cathedrals. But there are graver aspects of our present crisis, if, indeed, we may use the comparative degree at all. The Chancellor should, it is said, nowadays sit on a sack of coal, not of wool, if that seat typifies, as they say it used to do, the absolutely necessary means of national well-being.

IN an early number of THE SCHOOL WORLD we took occasion to comment on the "conversion" of Prince Boris of Bulgaria to the Orthodox Church. He is the eldest son of Ferdinand I. of the house of Saxe-Coburg-Gotha, who was chosen Prince by the Bulgarians in 1887, and no doubt found it convenient that his heir-apparent should be of the same religion as his future subjects. We in Great Britain and Ireland may smile at the "conversion" of a little child, as yet unable to understand the differences between his father's and his adopted faith, but we must remember an infant of 1688 who had to flee before he could walk because he was presumably Roman Catholic. Now Prince Boris is "of age" (he was eighteen last January), and the Christian States of the Balkan Peninsula have been assembling at the capital of Bulgaria to celebrate the event. Our minds not merely go back to events of our own lifetime, during which these States have acquired independence, or to the far distant past, when they were conquered by the Turk, but also forward to what this celebration may help to further. Will there ever be again one Christian State in that distracted land, as in the days of Constantine? Will that State seek to regain for Christendom Constantine's city?

ITEMS OF INTEREST.

GENERAL.

CAPTAIN ROALD AMUNDSEN reports that he was successful in his dash for the South Pole during the last Antarctic season. We await, with some impatience, news from Captain Scott, whose scientific investigations would prevent him from leaving his winter quarters quite so speedily as Captain Amundsen. As a mere dash for the Pole, Captain Amundsen's exploit shows great skill in organisation, although he has been favoured by good fortune; he made a base on the Ross Ice Barrier, which Sir Ernest Shackleton could not safely attempt; he found few wind furrows on the ice surface, and had easy travelling; he found a new glacier route on to the southern mainland, and this was an easier ascent than the only other known route up the Beardmore Glacier; and he had exceptional weather. The earlier explorers met furious winds on their southern journeys, and led geographers to doubt the hypothesis that Antarctica was a high-pressure region with comparatively still atmospheric conditions; Captain Amundsen experienced the latter conditions, as he travelled much of the way through fog. The probable connection of King Edward VII. Land with the mountainous country observed by Sir Ernest Shackleton is made almost certain by Captain Amundsen's discovery of

the southern limit of the Ice Barrier. We heartily congratulate the explorer on his success, and we may be pardoned the hope that Captain Scott has been equally successful.

IN connection with the Order in Council made on February 29th constituting a Registration Council representative of the teaching profession, the Board of Education, with the concurrence of the Treasury, announces that assistance will be given to the new Council so as to finance it for a period not exceeding three years from July 31st, 1912. The sum of £2,800 which remained in the hands of the previous Teachers' Registration Council will be handed over to the new Council, and in so far as this fund and any fees accruing to the new Council may prove insufficient to meet its expenditure, the Government will make advances of the funds required within a specified limit, and subject to repayment on terms to be arranged between the Council and the Treasury. The Board further announces that it is prepared to receive applications for 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. Applications for such repayment should be addressed to the Board of Education, and should state the registered number, the service of the applicant with dates, and in the case of retirement the date of retirement from service. All such applications should be received on or before August 31st, 1912. Applications received after that date cannot be considered.

A ROYAL COMMISSION has been appointed to inquire into the method of appointment to and promotion in the Civil Service and other cognate matters. The terms of reference are: to inquire into and report on the methods of making appointments to and promotions in the Civil Service, including the Diplomatic and Consular Services and the legal departments; to investigate the working and efficiency of the system of competitive examinations for such appointments, and to make recommendations for any alterations or improvement in that system which may appear to be advisable; to consider whether the existing scheme of organisation meets the requirements of the public service, and to suggest any modifications which may be needed therein. The commission is constituted as follows: Lord MacDonnell (chairman), Duke of Devonshire, Bishop of Southwark, Sir Henry Primrose, Sir K. M. Mackenzie, Sir D. Macalister, Sir Guy Granet, Harold Baker, M.P., J. R. Clynes, M.P., S. J. G. Hoare, M.P., R. D. Holt, M.P., P. Snowden, M.P., A. A. Booth, Arthur Boutwood, P. E. Matheson, Dr. A. E. Shipley, Graham Wallas, Miss Haldane, and Mrs. Dean Streatfeild. The secretary to the commission is Mr. S. Armitage-Smith, of the Treasury, to whom correspondence may be addressed at Treasury Chambers, Whitehall, S.W.

THE Cambridge Summer Meeting this year will begin on July 27th and end on August 20th. For the first time the new university examination halls and lecture rooms will be used. The Earl of Selborne will give the inaugural address. The main subject

of study will be the British Empire, and distinguished authorities on imperial matters will deliver lectures. In the education section, detailed instruction will be provided in the teaching of elementary experimental science. A circular giving further particulars can be obtained on application. A course of literary lectures will be given in French by Prof. Louis Maigrón, of the University of Clermont-Ferrand. Further information will be supplied by the Rev. D. H. S. Cranage, Syndicate Buildings, Cambridge.

LORD HALDANE, as chairman of the Royal Commission on University Education in London, has received offers of munificent gifts towards the provision for the University of London of suitable and adequate buildings on a central site. The first offer is from a friend of the University, who desires to remain anonymous for the present, of a contribution of £100,000 towards the acquisition of the vacant site on the Duke of Bedford's estate north of the British Museum. The donor considers the site the most central and suitable for the contemplated erection of new headquarters, and holds that the University of London ought to be the chief educational institution of the Empire. The second offer is from the Drapers' Company, and is embodied in the following resolution forwarded to Lord Haldane: "That the Drapers' Company offer to erect a Senate house and administrative offices, to form a distinct portion of the new buildings for the University of London proposed in the report of the Royal Commission dated December 15, 1911, at an approximate cost of sixty thousand pounds (£60,000), provided that a suitable site is acquired and the other buildings referred to by the Royal Commission as necessary for the University headquarters are otherwise provided for within a reasonable time, and upon condition that the site, as well as the plans and cost of the building, are approved by the company." In addition the trustees of the Bedford Estate have offered a reduction of £50,000 in the price of the site, and the Duke of Bedford a personal contribution of £25,000.

THE National Food Reform Association has arranged to hold a conference on diet in schools at the Guildhall, London, on May 13th next, when the Lord Mayor will preside. The programme includes the following subjects for discussion: diet as a factor in physical, intellectual, and moral efficiency; instruction in the elements of physiology and personal hygiene; and problems of institutional feeding and training in institutional management. Full particulars may be obtained from the secretary, Mr. C. E. Hecht, 178, St. Stephen's House, Westminster, S.W.

THE first International Eugenics Congress is to be held at the University of London from July 24th to July 30th next. It is hoped by means of the congress to make known more widely the results of the investigations of those factors which are making for racial improvement or decay; to discuss to what extent existing knowledge warrants legislative action; to organise the co-operation of existing societies and workers; and to hold an exhibition. The general heads under which the subjects to be dealt with at

the congress will be grouped are: the bearing upon eugenics of (i) biological research; (ii) sociological and historical research; (iii) legislation and social customs; and (iv) the consideration of the practical applications of eugenic principles. Major Leonard Darwin is the president of the congress, and Mrs. Gotto, 6, York Buildings, Adelphi, London, W.C., is the honorary secretary.

THE minds of persons who take part in the training of students preparing for university diplomas in education have for some time been exercised as to the proper place and value of the history of education in the course of training. The time is so short, and the immediate claims of practice and of modern theory are so great, that many are asking whether the history of education is not a luxury which could well be dispensed with. At a meeting of the Teachers' Training Association on March 16th, a discussion took place on this question, papers being contributed by Miss Wood and Messrs. Campagnac, Fox, Keatinge, and Welton. The views of the contributors differed considerably in detail, though all agreed that within limits the retention of history in the course is eminently desirable. There was general insistence, we are glad to say, upon the utter inadequacy of the view (too often implied in syllabuses and examination papers) that we are to resort to history for principles and methods immediately applicable to present needs. "If," wrote one of the contributors, "we read the educational classics from any but a historical standpoint, they seem absurd or commonplace." This sentence sums up much that is best in the papers before us, and with the view it expresses we cordially agree.

THE Education Committee of the Leeds City Council issues a pamphlet giving detailed particulars of junior and intermediate scholarships which it offers for competition among the boys and girls of Leeds. In this pamphlet the advantages of gaining a scholarship are set out, with a view evidently of convincing parents of the wisdom of allowing their children to become candidates. In these days of keen competition, says the committee, it is essential that every boy or girl who has his or her way to make in the world should receive as good an education as possible. No parent who by making sacrifice can give his child a secondary-school education can afford to neglect the opportunity. The better educated a child, the better are his chances in life. From an inquiry into the careers of some 10,000 men who have been successful in various spheres of work, the following conclusions were drawn: that a boy with the training only of the primary school had one chance of success in nine thousand; that a boy with the training of a secondary school had one chance in four hundred, that is, he had twenty-two times the opportunity of the boys who stopped at the end of the primary school; and that a college education gave one chance in forty; in other words, the chances of success of a university trained young man are ten times those of the secondary-school trained boy, and two hundred and twenty times those of the boy whose education stops with the primary school.

WE are glad to notice that the Gilchrist Trustees have resolved to grant an annual studentship in geography, of the value of £100, for advanced work in the subject, but not for preliminary training. The studentship will be confined to teachers who have had experience in teaching geography, and possess an adequate knowledge of it. The student will be expected to pursue a definite course of geographical study to be approved by the Trustees. Applications for the studentship should be sent to the Hon. Secretary, Geographical Association, 40 Broad Street, Oxford, not later than April 25th in each year. The applications should include a statement of the age and career of the applicant, the training in geography, the experience in teaching it, and the name of the headmaster or headmistress, or governor of a school, or others to whom reference can be made. The application should also state what work the candidate would propose to do if elected, and what time would be devoted to it. These applications will be considered by a joint committee, who will submit recommendations to the Trustees. A report on the work done as Gilchrist student must be submitted to the committee.

WE have received from the Educational Colonies and Self-supporting Schools Association a pamphlet entitled "Careers and Work for All," in which the honorary organising secretary, Captain J. W. Petavel, explains some of the objects of the association. The association is working for a reform that would affect in an important way the solution of social and educational problems, and to promote the establishment of educational colonies for young men of all classes which will give a practical illustration of what is advocated. Full particulars of the work of the association can be obtained either from the honorary secretary, Mrs. H. S. Davidson, Caxton House, Westminster, S.W., or from Captain Petavel, Educational Colony, Stanford-le-Hope, Essex.

IN the March issue of *The Highway*, a paper published by the Workers' Educational Association, Sir John Gorst writes on "The Failure of National Education." The established system of national education in England and Wales is, says Sir John Gorst, a failure. Its expense to taxpayers and ratepayers is enormous. Twenty-five millions, in round numbers, is paid out of the nation's revenue. The reasons advanced for this alleged failure may be briefly summarised as follows: Care is not taken to secure proper raw material of children upon which the machinery of education is to operate. When the army of children of the nation, good and bad, mixed indiscriminately, have been driven into the nation's schools, the instruction given is too literary, and not sufficiently practical. What is called "higher education" is a mere transfer of certain favoured individuals from the schools of the children of the poor to those of the children of the rich. But of all the obstacles to a genuine national education, perhaps the worst is the examination system. After following Sir John Gorst through his indictment, we are reminded that from 1895 to 1902 he was Vice-President of the Council and responsible head of this system of education for which he can say so little.

To the January number of *The School Review* (Chicago University Press), Mr. P. Chubb contributes a paper on "Pedantry in Teaching English," which is well worth the attention of English teachers on this side of the Atlantic. In tracing the disastrous effects which the traditional methods of teaching the Greek and Latin classics have had upon the teaching of English, Mr. Chubb traverses somewhat familiar ground, though he does so in a fresh and vivid way. But we desire specially to commend his remarks on reading aloud. He says: "The reading of most high-school students is abominable," and yet "a poem, a play, a story is not so much print; it is so much sound, music, 'heard melody.' A book is a mere device for putting poetry and prose into cold storage. We habitually dwell to-day in this frigid atmosphere. . . . It is mere academic pedantry to put almost exclusive emphasis on the printed or written word—cold, silent print—to the neglect of the spoken word. That we *hear* so little good literature is partly the reason why we speak so ill; the ear is not trained by listening to correct and beautiful speech. And, to press our logic still farther, it is also undoubtedly one of the reasons why we write so ill. The ear is no longer a court of appeal. We have lost the auditory feeling for sentence unity and coherence."

THE March issue of *The English Review* is certainly an instance of the provision of a half-crown monthly at the price of a shilling. We cordially advise teachers who wish to be *au courant* with modern views and tendencies to subscribe to this excellent periodical. They will be delighted with its freshness, candour, and high literary standard.

SCOTTISH.

At a meeting of the Scottish School Boards' Association a resolution was carried urging that the superannuation scheme now before Parliament should not receive the final approval of Parliament until the question of the increased Treasury grants for education in Scotland was settled on lines satisfactory to the school boards. All the speakers were emphatic in their approval of the principle of the scheme, but they viewed with grave concern the additional burdens it would throw upon the rates if passed in its present form. At a subsequent meeting of the larger school boards and burgh and county committees the same subject came up for consideration. Mr. James Clark, K.C., chairman of the Edinburgh School Board, who presided, stated that in May last they had received a promise from the Chancellor that he would receive a deputation from that body in reference to increased grants. They had recently approached the Chancellor in regard to the promised interview, but he replied that, as he had under consideration the question of pensions for teachers in the United Kingdom as a whole, no good purpose would be served by receiving a deputation at that time. Mr. Clark said that the Chancellor was trifling with the question and with them, and that it was necessary to take up a strong attitude. It was afterwards moved and carried that they should oppose the passing of the superannuation

scheme. Dr. R. S. Allan, chairman of the Glasgow School Board, entered an emphatic protest against such a step. They could not and should not, he said, prevent the scheme from passing into law. It was a scheme to carry out the provisions of an Act of Parliament, and these provisions at the passing of that Act had been approved by the school boards themselves.

THE Secretary for Scotland, Mr. McKinnon Wood, in reply to a question in the House of Commons, stated that the Treasury was now prepared to pay a yearly grant of £45,000 in aid of the new superannuation scheme for teachers. Of this sum, £20,000 represents the sum due under the Superannuation Act of 1898, and the remaining £25,000 an additional contribution, for which there would be an equivalent grant towards the pension schemes of English and Irish teachers. In addition, he stated that the Treasury has agreed to pay a grant of £7,500 towards the expenses of medical inspection. Notwithstanding this liberal response to the demands of school boards, certain of these bodies resolved at a conference to endeavour to secure the postponement of the scheme unless a larger sum is forthcoming, and for this purpose appointed a deputation to proceed to London. This unreasoning attitude on their part is certain to lose them the sympathy of all members of Parliament who approved their original demands for a grant in aid. If they succeed in obtaining an interview with the Chancellor, they will probably hear some straight talk in regard to their dog-in-the-manger policy.

TEACHERS have not been unduly perturbed by the threats of the school boards to secure the postponement of the scheme. They have the explicit promise of the Chancellor of the Exchequer, speaking, as he said, not only for himself, but with the sanction of the Prime Minister, that the Government will stand by the scheme so far as teachers are concerned, and that it will be dealt with the first thing this session. They have strongly supported the plea of the school boards for increased Treasury grants to meet the increased burdens placed upon the Education Fund by the Act of 1908. Now that the Treasury has made a liberal contribution in response to that appeal, teachers are naturally incensed at the action of the school boards in still opposing their superannuation scheme. They point out that the scheme in its original form as embodied in the Act of 1908 was approved by all the parties directly interested—the Department, school boards, and teachers. To turn round now and say that the scheme is more costly than they anticipated is hardly playing the game. Teachers have, however, no fear that this opposition will prove effective in delaying this long overdue measure of reform. Sir Henry Craik, in reply to a correspondent, puts the case for the teachers with irresistible force when he says: "I shall do all in my power to ensure that the scheme shall become law in terms of the Education Act of 1908. Were any other course pursued, it would inflict discredit upon Parliament by undermining the reliance which can be placed upon an Act of the Legislature, and it would

involve a breach of faith with a great profession which has accepted the pledge of Parliament as something beyond doubt or cavil."

THE announcement of Lord Pentland's resignation of the Scottish Secretaryship on his appointment to a high office in India has been received with very general regret by all interested in education in Scotland. During his term of office many notable reforms have been effected in educational administration and organisation. The vexed questions of the tenure and superannuation of teachers have been practically settled, and the consolidation of school board areas has been appreciably advanced. In the difficult task of piloting the Education Bill of 1908 through Parliament, Lord Pentland displayed sterling qualities. While ever ready and willing to compromise on non-essentials, he was adamant where principles were concerned. In the annals of Scottish education, the Act of 1908 will be a lasting memorial of his work and worth.

In submitting its report for the academic year 1910-11, the executive committee of the Carnegie Trust directs attention to the fact that the past year completed the first decade of the history of the Trust. The total income for that period amounted to £1,062,931, out of which £63,546 was expended on research, £368,289 in grants to universities and colleges, £445,373 on class fees for students, and £30,158 in administration. The only new feature in the report is the offer to lend money at a very low rate of interest to responsible authorities who may wish to erect hostels for students in universities or colleges. Special attention is directed to the regulation requiring all future beneficiaries to have obtained the leaving certificate of the Scotch Education Department. Already, however, this regulation has been severely criticised on the ground that monopolies in examinations are as harmful as in other spheres of activity.

At a meeting of the Modern Languages Association in Glasgow University, M. Charles Martin, lecturer in French in the University, read a paper on "Ce qu'il faut lire en classe." Before entering upon his subject proper, M. Martin made some interesting statements, based upon his experience at the University. Students to-day can follow a lecture in French with much greater ease than in old days, but they have made no advance in French composition or in idiomatic translation. The lecturer is inclined to think that the oral method has been overdone, and that more attention should be given to writing and reading foreign languages. In regard to what should be read in class, three principles should be kept in view. In the first place, there are texts which have a high pedagogical value for the teaching of language and the formation of style; these are the works of the great prose writers. Secondly, there are texts the value of which depends on their moral and æsthetic teaching. To this class belong the works of the great poets and dramatists. In the third place, they should keep in view in their selection of texts the importance of works giving vivid

ideas of French life and thought. These will be found for the most part in the writings of historians and novelists.

IRISH.

It is definitely stated that the scheme for scholarships from primary to intermediate schools in Ireland has been rejected by the Treasury. A grant was promised for this purpose by Mr. Birrell, speaking in the House of Commons last May. Since then, after some discussion, a scheme was agreed upon by different authorities in Ireland, involving an outlay of £10,000 per annum, and was laid before the Treasury by the Commissioners of National Education and the Board of Intermediate Education. It is this scheme which has been rejected, but on what grounds is not clear. Mr. Birrell has recently stated in the House of Commons that he is considering a scheme for enabling pupils of primary schools to pass through intermediate schools to the university, but added that its success depended on the county councils taking a wider view of their powers under the Universities Act of using the rates for the purpose of providing university scholarships.

MOST of the county councils have limited the tenure of these scholarships to the National University, contrary to the spirit of the Act, and Mr. Birrell uttered a warning that by so doing they were likely to wreck the scheme he had in mind. He stated that all the universities in Ireland are undenominational, and no distinction should be made between them on religious grounds. Is it for some reason of this kind that the Treasury rejected the scheme presented to them? The county councils are no doubt possessed by a laudable desire to help the new National University, but they forget that in any case most of the scholars would go there, while the enforced restrictions on the holders of the scholarships put the county councils into a position which is open to criticism.

IN connection with the Association of Irish Secondary School Teachers, branches are being formed throughout the country to organise the women teachers. The object is to focus the attention of women teachers on the great questions now awaiting settlement, such as registration, pensions, security of tenure, and increases in salary. Speaking at a preliminary meeting in Belfast, Miss Tremain, who is organising the branches, said that in the recent interview with the Chief Secretary, the representatives of the teachers were not able to present a united scheme of registration having the sanction of the majority of the teachers, and they were told that unless the teachers were prepared to take the trouble to fit themselves in all ways, like teachers in other countries, they could not expect to be treated in the same way by the Government.

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, Dublin, will be offered for competition among students of science and technology at an examination to be held in Dublin on

June 25th to 28th next. The age limit is between sixteen and thirty, and candidates must have been born in Ireland or resident there for three years. They must pass a qualifying examination in general subjects, but the competition will be limited to mathematics, experimental science, and drawing. Application must be made before April 30th.

THE latest issue of the Department's *Journal*, besides numerous articles dealing with agriculture and technical instruction, contains an article by Mr. George Fletcher, assistant secretary for technical instruction, on "A Decade of Technical Instruction in Ireland." To the paper are appended some interesting tables of figures showing the numbers of students working in connection with the Department. In day secondary schools the number has risen from 6,615 in 1901-2 to 15,003 in 1909-10, and the grant from £2,366 in 1900-1 to £28,000 in 1910-11. In technical schools the number of students has risen from 29,513 in 1902-3 to 42,909 in 1909-10, and the grant from £2,818 in 1900-1 to £27,000 in 1910-11.

WELSH.

LLANDUDNO is building a new Higher Standard School, to be opened next September. The Carnarvonshire Education Committee has arranged that there shall be a staff of ten teachers, all to be certificated. Each teacher will be expected to be exceptionally well qualified in some particular subject, and the pupils will be limited to those who have at least reached the fourth standard. The Carnarvonshire Education Authority has proposed that the school should be a dual, if not a mixed, school, similar to many of the county intermediate schools, so that in subjects which both boys and girls study they can be taught together. A meeting, however, of the managers of all the primary schools in Llandudno has been held to consider the desirability of urging the county authority to establish separate schools for boys and girls. It is suggested that the mixed school system was adopted in the county for economic reasons only. This meeting took the view that the time had now arrived when the number of the children made the retention of the "mixed" system no longer necessary, and a motion was carried asking the county authority to provide separate departments for boys and for girls, and to appoint a headmaster and headmistress respectively. Thus there seems to be a reaction setting in in Wales against co-education.

THE Welsh Appointments Board is an employment bureau for outgoing students of the Welsh university colleges and pupils of the Welsh intermediate schools primarily, but it is intended to be of use to all Welsh pupils and students. The Board is to consist of a body of which nine members are to be appointed by the University Court, nine by the Appointments Association, three by the Central Welsh Board, and four by the local education authorities, and three co-opted members. Its functions will be: (i) to supply information periodically to Welsh schools and the university colleges as to posts and examinations in the Civil Service at home and abroad, and such openings

in commercial and industrial undertakings as offer suitable careers to graduates, or other students or pupils; (ii) to enlist the sympathy of business men as regards the employment of graduates or other students or pupils in private firms, and to bring employers and such persons into communication; and (iii) to keep a register of names of persons who, having been pupils in Welsh schools or students in university colleges, desire to enter the public service or to obtain some business appointment.

PRINCIPAL GRIFFITHS (of the University College of South Wales and Monmouthshire) has been lecturing to the Newport Literary Society on "A National University." He pointed out that a university ought to lead to the establishment of harmony and of a common sentiment between all classes, and to bring all on to common ground of intellectual interest. There were no such things as Welsh mathematics, Welsh chemistry, and Welsh Latin, though these and other subjects might be more effectively pursued by regard being had to the particular temperament of students. So far as he could see, the University of Wales stood out as a university which represented a nationality. The cry of Wales for the Welsh was false patriotism. They should not endeavour to make their universities and colleges so distinctively Welsh, and refuse the assistance of the best teachers of England. After dwelling upon the characteristics of a national university in giving marked attention to the history and literature of a special race, though without preventing progress in other activities, Principal Griffiths urged the University should help all of proven ability, and the incompetent should be absolutely debarred. He would welcome the day when universities decided to insist on a more rigorous test at entrance.

At the Swansea Town Council, a discussion has taken place on the proposal to allocate only £2,000 to the maintenance and upkeep of the Central and Branch Libraries out of the 1¼d. library rate, so as to obtain further funds for the purposes of arts and crafts. The discussion drifted into the relative value of literature and art. It was stated that the libraries were decreasing in usefulness, an argument which (if it were true) might be regarded as calling for strengthening their attractiveness and resources, and making such reforms as may be practicable. The importance of the reading of good literature is now as great as, or greater than, ever. It was urged that the whole aim of the Art Committee was to democratise art and encourage its application to crafts for the benefit of the masses. It seems to have been felt by the Town Council that the time had come to attempt to develop the art and craft side of municipal activity, and the original recommendation, as above, was carried by 16 votes to 8.

THE accountant of the Glamorgan County Council Education Committee has submitted his estimate on the cost of education for the coming year 1912-13, which shows that an elementary education rate at 1s. 8d. in the £, and a secondary education rate at 2¼d. in the £, will be necessary. The subcommittee recommended that the Elementary Education Subcommittee should inquire whether the loss of Parlia-

mentary grants for elementary schools referred to in the county accountant's report had not in a large measure been brought about by the exclusion of children from school attendance under the authority of the school medical officer, and, if so, to consider what restrictions should be placed upon such exclusion with the view of minimising the loss. It was stated that out of fifty-seven counties in the country for last year only three had the elementary rate so high as 1s. 3d. in the £, viz., Glamorganshire, Monmouthshire, and Pembrokeshire. Durham came next with 1s. 2d., whilst for next year Glamorganshire proposed to raise 1s. 8d. It was decided to adopt the recommendations.

MYTHS IN LITERATURE.

The Classic Myths in English Literature and Art, accompanied by an Interpretative and Illustrative Commentary. By C. M. Gayley. xlii + 598 pp. New edition, revised and enlarged. (Ginn.) 6s. 6d.

THE idea of this book is good. The author has collected a large number of English poems, and these he has inserted in a continuous narrative at the places where they properly come; the story is illustrated with sculptures, ancient and modern. The tales are classified thus: Greek myths of the Creation, the gods of Heaven, of Earth, of the Underworld, of the Waters; so with the Romans; then the lesser divinities, in order, the heroes, the house of Æolus, of Ætolus, of Minos, of Cecrops, of Labdacus, the Theban and Trojan cycles, and Æneas; to which are added rather incongruously Norse myths and the Ring of Nibelung. A second part discusses the history and distribution of myths.

The book is bulky and heavy, and it would have been better, we think, if it were confined to classic myths, as every reader will understand the term. The stories, the poems, and the pictures are enough; but we doubt whether those who will want these will be able to profit by the second part. In fact, it is not quite clear whom the author has in view. Much of it suits children, much does not; if we may assume a public of grown-up but uneducated persons the book is likely to suit them best. It is also an error of judgment, we think, to use the Latin names for Greek gods, and, where both are given, to take the Latin as normal and put the Greek within brackets.

There is lastly a long introduction, which is not really wanted, and it contains too much incongruous metaphor or "fine writing," while the text itself might well have been put in simpler style. A pronouncing index of proper names plays havoc with quantities; witness "Antérōs, Cercópēs, E-éshī-ōn, Hécūba."

But although we cannot help regretting these faults of plan and style, we are glad to admit that the book can be made very useful. Besides the poems that the text quotes, there are in the notes a large number of references to others, together with information on biography, etymology, and other points. The index of authors and artists fills thirteen pages; there are 189 pictures. The labour of compilation must have been enormous, and judiciously used the book will be a valuable help to the understanding of ancient and modern literature.

Chemistry Note-book. By E. J. Sumner. 92 pp. (Burnley: The Cooper Printing Co., Ltd.) 2s.— This is a miscellaneous assortment of experiments interspersed with remarks on theoretical matters, with revision questions, and historical notes. The book will be serviceable chiefly to the author's pupils.

RECENT SCHOOL BOOKS AND APPARATUS.

Modern Languages.

Gasc's Little Gem Dictionary of the French and English Languages. viii+279 pp. (Bell.) 1s. net.—Based on the well-known dictionary by Gasc, this handy little volume has been edited by Mr. Marc Ceppi. For many purposes it will be found convenient. The traveller, for instance, may be glad to slip it into his pocket. It is, however, scarcely full enough for use in the higher forms of schools, and in the middle forms the general tendency is to prefer a dictionary in which the explanations are given in French. The printing deserves praise.

A. Dumas, Histoire de mes Bêtes. Edited by L. H. Althaus. 39 pp. (Blackie.) 4d.—In a brief introduction Miss Althaus gives an account of Dumas. The text is bright and amusing. The notes, we are glad to observe, are in French. A short *questionnaire* and exercises have been added; these are "merely suggestive of the manner in which the matter of the text can be used." We trust that teachers will act on these suggestions. The text is well printed, and slips are rare and unimportant; e.g., *très-bien* on p. 32 (no longer printed with hyphen), *paraît* for *parait* on p. 33, *entre* for *entre* on p. 34.

Ch. Perrault, La Belle au Bois Dormant, Le Chat Botté et Le Petit Poucet. Edited by A. G. Latham. vi+90 pp. (Macmillan.) 1s.—Mr. Latham prefaces the text by some account of Perrault, and supplies full notes. There are also a vocabulary and five appendices, viz.: (i) *questionnaire* (four to six questions to the page); (ii) words and phrases for *viva voce* drill; (iii) a small number of exercises on syntax and idioms for *viva voce* practice (sentences for re-translation and exercises, mostly on reform lines); (iv) passages for translation into French; (v) key to the words and phrases of appendix ii. To those who adhere to the translation method in the early stages of modern language instruction the little book will be welcome.

Progressive French Idioms. Compiled by R. de Blanchard. ix+119 pp. (Harrap.) 1s.—The idioms are given in two columns, one containing English sentences, the other French renderings, in which the chief word is printed in italics. The sentences in each of the first four sections (grammatical idioms, elementary idioms, common idioms, advanced idioms) are arranged in the alphabetical order of the chief words. The remaining sections deal with proverbs, similes, and the appendices with the construction of some common verbs and paronyms. Mr. Blanchard has done his work carefully; it is particularly satisfactory to find that the English renderings are idiomatic, and the French text is free from misprints.

J. Verne, Martin Paz. Edited by W. M. Poole and E. L. Lassimonne. 4+92 pp. (Murray.) 1s. 6d.—This volume of the "Lectures Scolaires Supérieures" contains the text of an interesting story, which occupies the left-hand pages, and—on opposite pages—questions on the subject-matter and on grammar. At the end are seven pages of notes, in which some difficult words and expressions are explained in French. The editing is entirely on reform lines, and is very satisfactory. We ourselves prefer to have exercises based on logical sections of the text, not on the page, which usually leaves off in the middle of a sentence. Apart from this, we have only praise for this interesting reader.

Classics.

C. Cornelii Taciti Cnaei Julii Agricolaë Vita, typis novis majorem in perspicuitatem excusa. 42 pp. (Kegan Paul.) 6d.—The title above shows what the "new types" are. The author has put an acute accent on long vowels (omitting concealed longs, and some others, as *fortuittis*, *Ordovicés*, *ancipiti*, perhaps by accident), and a grave accent on adverbs, as *quàm*; he has used type to help the sense in other ways, by italics, by stops, dashes, and hyphens. He uses *j* and spells in an old-fashioned way, as *caeteri*. It is most unfortunate that the accent was used instead of the long mark; it is certain to confuse, and we do not see what will be gained by it. Otherwise the book might have been useful. It is clearly printed.

Selections from Ovid, Heroic and Elegiac. By A. C. B. Brown. With (or without) vocabulary. 62 pp. (Clarendon Press.) 1s. 6d.—About half these selections come from the *Metamorphoses*, half from the *Elegiac* poems; they occupy sixteen pages in all, and there are notes and vocabulary at the end. It is difficult to see what use there is in so small a selection at a price which would buy a good deal of the text of Ovid. However, such as they are, they are interesting and excellently well printed—a great merit indeed. The notes are very elementary.

English.

Simplified Spelling: An Appeal to Common Sense. 95 pp. (The Simplified Spelling Society.) It seems almost presumptuous, in view of the distinguished names under whose auspices it appears, to criticise this book at all. The innovations proposed are admittedly only a compromise, and not a very scientific one at that. If the sound is to be represented by the spelling, surely that spelling should be such that all English-speaking people should interpret it by means of the same sounds. Would an Englishman north of the Tweed—for in this connection it is absurd to give him any other name—pronounce "The Dieverting History of John Gilpin" (p. 83) in the same way as an Englishman south of the Thames? If not, the Simplified Spelling Society is merely replacing one mass of confusions by another. The society in this book says: "Let the spelling be closely connected with the sounds, and the cultivation of the speaking voice is bound to follow." Is the cultivation of the speaking voice much more apparent in Spain than in—America? We say America, for we scarcely think that the society would regard American spelling as a remedy for all our woes. And does Prof. Rippmann, who we notice is on the committee, really think that in countries where the spelling approximately follows the sound, modern language teaching might almost dispense with phonetics? For that, if not stated explicitly, seems to be implied in this little book. Spelling is purely mechanical; pursued mechanically it takes up, we are inclined to think, less time than the Simplified Spelling Society imagines. The mistake in elementary teaching has been to make a very mechanical affair the occasion for a vast amount of pseudo-scientific experiment.

Senior Course of English Composition. By E. W. Edmonds. viii+284. (Clive.) 2s. 6d.—This book has been compiled to suit the requirements of the Cambridge Senior Local examination. About a third of it is taken up with a preliminary treatment of such mechanical devices as paragraphing, punctuation, and letter-writing, and then composition proper is dealt with under the headings of narrative, description, historical, literary subjects, abstract subjects, and the great essayists. To enable a badly-taught pupil to

pass the Cambridge Senior Local examination the book appears to be excellently devised and arranged; but to our mind a well-taught pupil would get all the training given here, and a good deal more, through the literature which he would presumably be reading in an ordered English course.

The Teaching of English. By C. L. Thomson. 38 pp. (Horace Marshall.) 6d. net.—We are glad that Miss Thomson has published these two lectures, delivered last year to the students in the Training Department of Bedford College. Those who are familiar with the modern trend of English teaching, in which Miss Thomson has taken so distinguished a part, will find nothing new in them; but for young teachers and for others who stand rooted in the old ways nothing could be better, for they are sane and practical—two epithets which are not to be applied to many of the newer books on the teaching of English.

History.

British North America 1763-1867. By A. W. Tilby. vii+441 pp. (Constable.) 6s. net.—Mr. Tilby is progressing rapidly with his (to be) six-volumed history of "the English people overseas." This is the third volume, containing books IX.-XI. In the first he tells of "the split of empire," i.e., the quarrel with the thirteen colonies and its issue in the story of the United States of America, to 1801, and of Canada to 1791. In the second, harking back to the seventeenth century, he gives the story of the search for the Northwest Passage until its completion in 1905, the story of the Hudson's Bay Company and of the discovery of western Canada down to 1860. And in the third, beginning where necessary from the very first, he narrates the development of what is now British North America to modern times. It is all eminently readable, and is founded on the best authorities. Here and there the author indulges in rhetoric, and he seems always to keep near the surface of things. But the thoughtful reader will balance one against another his apparent contradictions, and gain profit from the perusal.

An Outline of British History. By A. D. Innes. viii+387 pp. (Rivingtons.) 4s. 6d.—The author some time ago wrote a "School History of England," which was devoted to "the constitutional development and international relations which together make up what is generally meant by political history." The book before us is written "to supplement" that work by giving the economic and literary history of the British Isles. For ourselves we should reverse the order, and teach the economic story first and then proceed to the international and constitutional history. And under Mr. Innes's guidance the teacher can adopt whichever of these methods he prefers. Here, at any rate, he will have an excellent introduction to this part of the subject. Each of the three sections is prefaced by a list of "guiding dates to leading events" and by short chapters summarising what was said in the former book, and there is a good index.

King Arthur in History and Legend. By W. L. Jones. vii+145 pp. (Cambridge University Press.) 1s. net.—If anyone wants to know how much of historical truth there is at the base of the legends about King Arthur, how through the Middle Ages those legends took shape, and how at length they came to Malory, and afterwards to Tennyson, to be transmuted by him into the "Idylls of the King," they should buy and read this little book by Prof. Jones. There are not a hundred and fifty pages of it, and these are small, but the reader will find all and more than he thinks he wants. It is an interesting

and useful essay in history and literature. There is an index.

A Short History of Australia. By T. Bateson. 196 pp. (Horace Marshall.) 1s. 6d.—The author of this little book, apparently an Australian, begins his preface by quoting and refuting a saying that "there is no romance in Australian history." We think he answers that accusation well, not so much in the preface as in the pages of his book. The story is delightfully told of the beginnings, and duly sobered down as it approaches the more modern history of the island continent. It comes down to the formation of the Confederation ten years ago. And our readers could not do better than read the book themselves and then put it in the school library.

Geography.

A Geography of the World. By B. C. Wallis. 372 pp. (Macmillan.) 3s. 6d.—This book is the latest addition to the series of Macmillan's Practical Modern Geographies. As regards practical exercises in conjunction with the descriptive text, it follows the general scheme of the series. The general scope of the book makes it most suitable for use in the upper forms of a school, and the method of treatment provides an excellent course of real geographical study. Part I. (pp. 1-72) deals with the world in general, and the most important natural regions, such as the forest regions, monsoon regions and others, are considered. In Part II. (pp. 73-361) a section is devoted to each continent, but the parts of the British Empire are taken as typical regions, and they are described in greater detail than the areas which are non-British. The most striking feature of the book, however, is the attempt to express geographical facts in terms of quantitative measurement; this attempt is made by means of statistical tables, and the numerical results obtained from them are used as a basis of comparison. It requires, of course, considerable training to appreciate the geographical significance of statistical tables, but it is just this training which is most valuable to the student, for it compels him to think in exact rather than in general terms. Economic geography lends itself most readily to this method of treatment, and great use has been made of trade returns in the preparation of the tabular statements. The relation of vegetation to the physical structure and the relation of human activity to the productive areas are also well shown throughout the book, though sufficient stress is not laid on the effect of environment on men. It is to be noted, however, that even if all the statistical tables be disregarded, the text still provides a description of the world sufficiently complete to satisfy the requirements of a school syllabus. By way of suggestion for another edition, the official name, the Netherlands, should be used instead of Holland, and uncommon abbreviations (p. 139 S.A.P.) should be avoided.

Mathematics.

An Introduction to Mathematics. By A. N. Whitehead. 256 pp. (Williams and Norgate.) 1s. net.—The editors of the series of books of which this volume forms a part do not have entrusted to abler hands the task of explaining to the beginner or non-mathematical reader the general principles and aims of mathematical investigation. Dr. Whitehead's qualifications are undoubted, and he possesses a grace of style and lucidity of expression which should enable his readers to follow the thread of the argument without difficulty. Although the object of the writer is not to teach mathematics, there are several chapters which might well be studied before the corresponding topics are taken up in the ordinary text-books; that,

for example, on generalisations of number forms an excellent introduction to the study of irrationals, and the two following, on imaginary numbers, will give the student views of the matter which are not to be found in the majority of current text-books. We would single out, however, for special mention the chapters on functions, series, and the differential calculus. These are admirable examples of the exposition of the fundamental principles in a clear and easily comprehensible style, and taken alone would make the book valuable. But everything in it is good from cover to cover.

An Elementary Treatise on Cross-ratio Geometry. By J. J. Milne. xxiv+288 pp. (Cambridge University Press.)—This book deals with one of the most attractive branches of mathematics, which in its present form was developed independently by Möbius and Chasles less than 100 years ago. But Mr. Milne shows that the Greek geometers Apollonius and Pappus were certainly acquainted with the fundamental principles of the subject, the former writer stating the converse of the anharmonic property of conics and the latter giving the theorem that a pencil cuts all transversals in equicross ratios. An appendix contains a version of Pappus's account of the porisms of Euclid, and of his lemmas on them, while in a second appendix Pascal's theorem is proved by the methods of Euclid and Apollonius. A comparison of this with the modern proof shows the infinite superiority of the modern notation, and at the same time increases one's admiration of the acumen and skill displayed by the Greek geometers; for although Mr. Milne does not state explicitly that this proof is essentially the same as that given by Pappus for the line-pair in the thirteenth lemma, this is presumably the case. The book divides itself into two parts. The first ten chapters deal exclusively with the point and straight line, and the remaining sections are devoted to the conic. As no use is made of the method of projection or of the properties of the circle (except in the last chapter), the conic is defined by the focus-directrix property, from which is deduced immediately the anharmonic properties of points and tangents. The method of treatment adopted is consequently not self-contained, but the writer considers that a student should read geometrical conics before being introduced to the methods of cross-ratio. The historical references enhance the interest, the diagrams are numerous and carefully constructed, and there is an excellent collection of examples. There are many points of freshness in the treatment of the subject, and we are certain that the book will find a place in the libraries of all mathematicians.

Science and Technology.

Stars and Constellations: a Little Guide to the Sky. By Agnes Fry. (Clifton: Baker.) 6d. net.—

If you would try to read the sky,
And have the time to learn a rhyme
Of stars and constellations;
Then you should look at this small book,
Which tells in verse—correct and terse—
Celestial relations.

Though we admire Miss Fry's desire,
To turn our eyes unto the skies,
And contemplate their treasures;
On our part, we think a chart
Close at our side, a better guide
Than her poetic measures.

Outlines of Inorganic Chemistry, with Special Reference to its Historical Development. By E. B. Ludlam. xvi+365 pp. (Edward Arnold.) Dr. Ludlam has adopted the excellent plan of basing his

teaching of elementary chemistry upon a historical foundation. The wisdom of this course is immediately apparent; the book is full of interesting personal and historical allusions, and the course is scientific and logical. The author's historical statements are almost always accurate, and the historical illustrations are admirably selected and reproduced. Criticism can only be restricted to points of detail, such as a formula which has strayed prematurely into the illustration on p. 79, and the iron nails which the author has introduced into Lavoisier's empty gun-barrel on p. 73. Objection must be made to the conventional statement on p. 169 that the water-molecule must contain two atoms of hydrogen because one-half of the hydrogen only is displaced by sodium; such a statement ignores the existence of double salts, and would compel us to write oxalic acid as $C_4H_4O_8$, since the hydrogen can be displaced in quarter-parts; the proof is sound when the vapour-density of the substitution-product can be determined, but in cases such as the one just quoted the "proof" is unsound, and should be dropped.

Pedagogy.

The Story of the Manchester High School for Girls, 1871-1911. By Sara A. Burstall. xx+214 pp. (Manchester University Press.) 5s. net.—Steadily increasing vigour has been the dominant note in the forty years' life of the Manchester High School which has inspired the present headmistress to write this entrancing story. We have read it chapter by chapter with unabated interest. The never-ceasing energy of the band of educational pioneers to whose efforts the school owes its origin may well serve as an inspiration to workers in the same field, faced to-day with problems just as difficult as those with which the Manchester Association for Promoting the Education of Women in 1871 had to contend. The reader cannot fail to be impressed by the cordial relations which have been developed between the school and the University of Manchester. Miss Burstall herself has done much to demonstrate the advantages which accrue to both school and university when the authorities of each set themselves to understand and enter into the aspirations of the other. The Manchester High School for Girls has gained the confidence of the community which it serves, and secured for itself a very high place in the esteem of educational workers everywhere. This book shows these results are the just reward of persistent endeavour extending over forty years.

Miscellaneous.

The Schoolmaster's Yearbook and Directory, 1912. lxxx+400+730 pp. (The Year Book Press.) 12s. 6d. net.

The Public Schools Year Book, 1912. Edited by H. F. W. Deane and W. A. Evans. xxiii+750 pp. (The Year Book Press.) 3s. 6d. net.

Each year we look forward to the new edition of "The Schoolmaster's Yearbook." We have become so in the habit of working with it at our elbow that it is difficult to know what we should do without it. The editor is remarkably successful in keeping it up to date, and the thanks of all schoolmasters are due to him for providing a complete and trustworthy guide to all matters of educational importance. We hope that the demand for it will justify the editor in continuing his efforts to maintain the publication at the high level of excellence it has now reached.

"The Public Schools Year Book" is indispensable to parents selecting a public school for their boys and to those choosing a profession for boys who are leaving school. The information provided is full, correct, and up to date.

EDUCATIONAL BOOKS PUBLISHED DURING FEBRUARY, 1912.

(Compiled from information provided by the Publishers.)

Modern Languages.

"Grammaire Pratique." A Supplement to "Le Français de France." By Mme. Valette Vernet. 84 pp. (Bell.) 10d.

"Contes de la Veillée." By Charles Nodier. Edited by C. G. Holland, with Notes, Phrase-list, Retranslation Exercises, and Vocabulary. (Blackie's Longer French Texts.) 112 pp. (Blackie.) 8d.

Lamartine, "Souvenirs d'Enfance et de Jeunesse. Préface des Meditations." Edited by Prof. Ernest Weekly. (Blackie's Little French Classics.) 32 pp. (Blackie.) 4d.

"Outlines of the History of German Literature, with Chronological Tables and Index." By Prof. J. G. Robertson. 320 pp. (Blackwood.) 3s. 6d. net.

Méry, "Deux Contes." Edited by T. R. N. Crofts. (Oxford Junior French Series.) 104 pp. (Clarendon Press.) 1s.

Eckmann-Chatrion, "Madame Thérèse." Edited by S. Tindall. (Oxford Junior French Series.) 96 pp. (Clarendon Press.) 1s.

"Cours de Dictées." By P. C. H. de Satgé. 128 pp. (Clarendon Press.) 1s. 6d.

"Direct French Course." By H. J. Chaytor. 204 pp. (Clive.) 1s. 6d.

The Common-sense Series: "German for Daily Use." By E. P. Prentys. German revised by Frau Alma Bucher. xi+66 pp. Cloth, 1s. 6d.; leather, 2s. 6d. "Japanese for Daily Use." By E. P. Prentys, assisted by Kametaro Sasamoto. 48 pp. Cloth, 1s. 6d. (Marlborough.)

"French Prose Writers of the Nineteenth Century. An Advanced Reader." By Victor Leuliette. 330 pp. (Pitman.) 3s. net.

"Pitman's Commercial German Grammar." By J. Bithell. 182 pp. (Pitman.) 2s. 6d. net.

"Modern French Composition." By J. Ulrich Ransom. Part I. 54 pp. 1s. Part II. 136 pp. 2s. (Relfe.)

Classics.

"Easy Latin Plays." By M. L. Newman. 32 pp. (Bell.) 6d.

"Isocrates." By E. S. Forster. 160 pp. (Clarendon Press.) 3s. 6d.

English: Grammar, Composition, Literature.

"Arnold's Continuous Readers for Infants." Six vols. 32 pp. (Edward Arnold.) 2d. each.

"The Story of Peter Pan." By J. M. Barrie. Retold by Daniel O'Connor. 78 pp. (Bell.) 9d.

"Lamb's Adventures of Ulysses." Edited by Dr. A. C. Dunstan. (Bell's English Texts.) xvi+96 pp. (Bell.) 8d.

"Scottish Vernacular Poetry. From Barbour to Burns." Selected, edited, and with an Introduction by T. D. Robb. (Plain-text Poets.) 112 pp. (Blackie.) 6d.

Lord Dufferin, "Letters from High Latitudes." Edited by Dr. Rouse. (Blackie's English Texts.) 128 pp. (Blackie.) 6d.

Borrow, "Wild Wales: its People, Language, and Scenery." Abridged and adapted by P. W. Begnon. (Masters of English Literature.) 128 pp. (Blackie.) 10d.

Shakespeare, "King Henry IV." Part I. Junior School Edition. Notes and Introduction by J. V. Saunders. 120 pp. 8d. Plain-text Edition. 94 pp. 4d. (Blackie.)

"Southey's Letters." Edited by M. H. Fitzgerald. (World's Classics.) 552 pp. (Oxford University Press.) 1s. net.

Scott's "Anne of Geierstein." Edited by M. H. Fitzgerald. (Oxford Editions of Standard Authors.) 524 pp. (Oxford University Press.) 2s.

"Oxford India Reader." By W. Bell. 320 pp. (Clarendon Press.) 2s. 6d.

Milton, "Paradise Lost, III. and IV." Edited by A. J. F. Collins and S. E. Goggin. 120 pp. (Clive.) 1s. 6d.

"Business English and Office Routine." By Arthur Mercer. 196 pp. (Harrap.) 1s. 6d. net.

"Northland Sagas." By Henry Gilbert. 160 pp. (Harrap.) 9d.

Shakespeare, "Coriolanus." Edited by S. P. Sherman. 214 pp. (Macmillan.) 1s. net.

Shakespeare, "Troilus and Cressida." Edited by J. S. P. Tatlock. (The Tudor Shakespeare.) 200 pp. (Macmillan.) 1s. net.

"Children of the Dawn, Old Tales of Greece." Parts I. and II. By Elsie F. Buckley. (English Literature for Secondary Schools.) 116 pp. each. (Macmillan.) 1s. each.

Marlowe, "Dr. Faustus." Edited by William Moden. (English Classics.) 118 pp. (Macmillan.) 1s. 9d.

Homer, "The Iliad." Translated by Pope. Edited by C. E. Rhodes. (Macmillan's Pocket Series of English Classics.) xxviii+642 pp. (Macmillan.) 1s. net.

"Expository Writing." Compiled and edited by M. G. Fulton. 596 pp. (Macmillan.) 6s. net.

"Dramatic Reader. III. Senior." By Alice May. 140 pp. (Pitman.) 10d. net.

"The Preliminary Composition Book." 63 pp. (Relfe.) 6d.

History.

"The Story of Israel and Judah from the Call of Abraham to the Death of Nehemiah." Richly illustrated. By the Rev. H. J. Chaytor. Complete. 5s. Part I. From the Call of Abraham to Solomon. 3s. Part II. From the Disruption to the Death of Nehemiah. 3s. (Blackie.)

Stories of the English for Schools. Book I. "From the Coming of the English to the Armada." By F. 178 pp.; illustrated. 1s. 6d. Book II. "The Struggle for Power and Greater England." By F. 261 pp.; illustrated. 1s. 6d. (Blackwood.)

"Dramatised History." Books III., V. By Mrs. Basil Gothorp. 64 pp. each. (Cassell.) 4d. net each.

"School History of Shropshire." By T. Auden.

192 pp. (Clarendon Press.) (a) 1s. 6d.; (b) superior binding, 2s. 6d. net.

"History of England for Indian Students." By V. A. Smith. 383 pp. (Clarendon Press.) 3s.

"The Early Cave-men. The Age of Combat." By Dr. Katharine E. Dopp. 160 pp. (Harrap.) 1s. 3d.

"The Later Cave-men. The Age of the Chase." By Dr. Katharine E. Dopp. 160 pp. (Harrap.) 1s. 3d.

"United States History for Schools." By Edmond S. Meany. 606 pp. (Macmillan.) 4s. 6d. net.

"A History of the British Constitution." By J. Howard B. Masterman. 308 pp. (Macmillan.) 2s. 6d. net.

"Dramatised History. III. Senior." By David Jones. 190 pp. (Pitman.) 10d. net.

"Industrial and Social History." By George Collar. 283 pp. (Pitman.) 2s.

"The Restoration and the Revolution, 1660 to 1715." By Arthur Hassall. 244 pp. (Rivington.) 2s. 6d.

"England's Industrial Development: a Historical Survey of Commerce and Industry." By Arthur D. Innes. 390 pp. (Rivington.) 5s. net.

Geography.

"The Clarendon Geography." Vol. I. By F. D. Herbertson. 379 pp. 3s. Part I.: Principles of Geography. 1s. 4d. Part II.: British Isles. 1s. 4d. Part III.: Europe. 1s. 4d. (Clarendon Press.)

"World Geography." One-volume edition. By Ralph S. Tarr and Frank M. McMurry. 552 pp. (Macmillan.) 5s. 6d. net.

Far and Near. II. "Peeps into other Lands." By J. B. Tomlinson. 176 pp. (Pitman.) 1s. 3d.

Mathematics.

"An Introduction to the Lie Theory of One-parameter Groups." By Dr. Abraham Cohen. 256 pp. (Heath.) 5s. net.

"The Rational Arithmetic for Rural Schools." Teacher's Book. Fifth Year's Course. By George Ricks. 64 pp. (Macmillan.) 8d.

"Examples in Arithmetic." Part I. By H. S. Hall and F. H. Stevens. 148 pp. (Macmillan.) With or without Answers, 1s. 6d.

"A New Algebra." Vol. II. By S. Barnard and J. M. Child. 442 pp. (Macmillan.) With or without Answers, 4s.

"Tests in Four-rule Arithmetic." 44 pp. (Relfe.) 6d. Answers. 8 pp. 6d.

"Preliminary Problem Tests in Arithmetic." 27 pp. (Relfe.) 6d. Solutions. 72 pp. 1s. net.

"Junior Algebra." The Examples only. By W. G. Borchardt. 198 pp. (Rivington.) With or without Answers, 2s.

"Key to Elementary Algebra." Part I. By W. G. Borchardt. 260 pp. (Rivington.) 5s. net.

Science and Technology.

"Gardens in their Seasons. A Nature-book for Young People." By C. von Wyss. 58 illustrations, 32 in colour. (Black.) 1s. 6d.

"Steamship Navigation, for Schools, Colleges, and Training Ships." By H. T. Arnold. 104 pp. (Blackie.) 1s. 6d.

"The Nature Book." Part I. February 28th. Serial, thirty-six fortnightly parts. (Cassell.) 7d. net per part.

"Wool Carding and Combing." By A. F. Barker and E. Priestley. (Cassell.) 5s. net.

"The Complete Gardener." By H. H. Thomas. (Cassell.) 10s. 6d. net.

"An Introduction to British Clays, Shales, and Sands." By Alfred B. Searle. xi+451 pp. (Griffin.) 7s. 6d. net.

"Internal Combustion Engines and Gas-producers." By C. W. Askling and E. Roesler. x+303 pp. (Griffin.) 12s. 6d. net.

"Water Analysis." By Herbert B. Stocks. viii+136 pp. (Griffin.) 4s. 6d. net.

"A Text-book of Rand Metallurgical Practice." Vol. I. By Ralph Stokes, Jas. E. Thomas, G. O. Smart, W. R. Dowling, H. A. White, E. H. Johnson, W. A. Caldecott, A. McA. Johnston, C. O. Schmitt. xix+468 pp. (Griffin.) 21s. net.

"Handbook to the Celestial Globe." 32 pp. (W. and A. K. Johnston.) 1s.

"Micropetrology for Beginners: an Introduction to the Use of the Microscope in the Examination of Thin Sections of Igneous Rocks." By J. E. Wynfield Rhodes. With a Preface by C. H. Sidebotham. (Longmans.) 2s. 6d. net.

"Practical Chemistry for Engineering Students." By Arthur J. Hale. With an Introductory Note by Prof. R. Meldola, F.R.S. (Longmans.) 3s. net.

"Laboratory Problems in Physics." By F. T. Jones and R. R. Tatnall. 92 pp. (Macmillan.) 2s. 6d.

"Rural Handicrafts." By G. F. Johnson. 135 pp. (Pitman.) 2s. 6d. net.

"Students' Guide to Political Economy." By Dr. F. H. Spencer. 224 pp. (Pitman.) 2s. 6d. net.

Pedagogy.

"The Ethics of School Life." By J. H. Moore. (Bell.) 3d. net.

"Outline of a Course in the Philosophy of Education." By J. A. MacVannel. 218 pp. (Macmillan.) 4s. net.

"Great Educators of Three Centuries." By F. P. Graves. 300 pp. (Macmillan.) 5s. net.

"Outlines of School Administration." By Arthur C. Perry. 462 pp. (Macmillan.) 6s. net.

Art.

"Pastel Work." By H. A. Rankin. 160 pp. (Pitman.) 4s. net.

"Shading and Painting for Schools." With four coloured and eight black-and-white plates. By J. W. T. Vinall. 44 pp. (Blackie.) 2s. 6d. net.

Miscellaneous.

"Elementary Tactical Problems." By E. A. Belcher. iv+104 pp. (Edward Arnold.) 2s.

"Acts of the Apostles." By W. M. Furneaux. 424 pp. (Clarendon Press.) 8s. 6d. net.

"An Introduction to the Study of Prices." By Walter T. Layton. 170 pp. (Macmillan.) 2s. 6d. net.

"Athletic Training for Girls." By C. E. Thomas. (Pitman.) 3s. 6d. net.

"Pitman's Pocket Dictionary." 1s. net and 1s. 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.

A School History of England.¹

I HAVE no quarrel whatever with the reviewer's opinion about my opinions, or with his view of the object with which the book was written, namely, to kindle in the young what I conceive to be patriotism. I have therefore no concern with the last two paragraphs of the review.

The real attack, however, is not made upon my opinions, but is an allegation that the book teems with inaccuracies, and as such is unfitted for a school history. And this attack is made with such extraordinary ignorance of history, with such unfairness, such twisting of my words, and in some cases such deliberate misquotation of them, that I wish no better fortune than that every schoolmaster who has some working knowledge of English history should read the review with the text in his hand.

First, I have to thank the reviewer for three real corrections:—(1) The cliffs at the entrance to Plymouth Sound are not white, though they and many similar cliffs have a trick of looking white when one approaches them from the sea in the sunshine; (2) the date of the union with Scotland (p. 181) should, of course, be 1707 and not 1708, and this I acknowledge to be a very serious slip; (3) I used the word "Protestants" for the early Reformers two years before it possibly could have been used, and many years before it came into general use; the earliest quotation for it in the "New English Dictionary" is 1539; I should, of course, have written "Lutherans" (p. 115).

With these exceptions all the very numerous complaints of inaccuracy are either totally wrong, or are verbal quibbles deliberately designed to throw dust in the eyes of the reader. I do not blame the reviewer for not knowing of Wolsey's letter to Henry VIII. in the autumn of 1515 ("Letters and Papers, Henry VIII.," ii., 1223) recommending an early dissolution of the existing Parliament, but he might have ascertained that Wolsey received the seals on Warham's resignation on December 22nd, and did that same day dissolve the said Parliament (Wolsey had been all-powerful with the King since March of that year); if the reviewer will read the account of Wolsey's career given by the two greatest living authorities on the Tudor period, Mr. Fisher and Mr. Pollard, he will see that my account is not "ludicrously incorrect" (see the "Political History of England," in twelve vols., Longmans, vol. v., by H. A. L. Fisher; and see also "Henry VIII.," by A. F. Pollard). But I thought every fourth-form boy knew that Luther was a monk (he joined the Augustinian Eremites at Erfurt

as a novice in 1505, and was professed in the next year—see "Cambridge Modern History," vol. ii., p. 114). I will refer the reviewer to an even simpler book, "Encyclopædia Britannica," 11th edition, to correct another correction of alleged errors; if he looks out "Methodism" in that work he will find that I was not far wrong, on p. 206 of our little book, in speaking of "Wesleyan and Methodist communities." Let him also look at the sixth volume of Longmans' "Political History" (p. 16, and the note on p. 71), by Mr. Pollard, and he will see that the statutes against heresy were repealed in the first Parliament of Edward VI. If he does not know what the "Great Schism" in the Papacy was, he might read Dr. Creighton's "History of the Papacy"; the restoration of the Popes to Rome was the result of the healing of that schism by the Council of Constanza. I need hardly quote Walter of Hemingburgh to refute his accusation of misstatement about Edward I.'s seizure of the wool of the clergy (see Stubbs's "Select Charters," p. 437), nor the text of "Confirmatio Cartarum" to show how he quibbles about the King's promise to take no taxes without the consent of Parliament (*ibid.*, p. 495).

This brings me to point out the places in which he has either deliberately misquoted me or garbled my meaning. He might have remembered that I am *writing for children* as well as *compressing all English history into 250 pages*; for, because I said "the hide is an old measure of land, say, an hundred and twenty acres," it does not prove that I do not know that hides vary in size, or that a hide became rather a concept than an area. As a matter of fact I sat at Maitland's feet when that great man first threw light upon the real meaning of the hide. I also know that John *sealed* rather than *signed* Magna Carta, but children could understand the latter, not the former. I contend that my account of Magna Carta, both as to villeins and freemen, is perfectly fair and correct—unless one were to give the whole text of every document in English history; Mr. Leadam, in vol. ii. of Longmans' "Political History," sums up the "fair trial" question almost in my words. I did not on p. 99 mention "villeins" at all ("positively incorrect use," says the reviewer); I said "*villeinage*" was dead; and so it was, in spite of the case of *Pigg v. Cayley*. I did not state on p. 85 that "the eldest son of the King has always borne the name of Prince of Wales," but that he has always borne it since Edward II.'s birth; I am quite aware that it needs a creation to make such eldest son Prince of Wales; but are children to be treated to *all* the details of Constitutional precedent?

"Henry VII. taxed rich people though he had no legal right to do so" (p. 113); "Charles I. had other little sources of income, many of them quite against the law" (p. 147); I maintain, in the teeth of your reviewer, that these are fair summaries of Henry's use of benevolences, and of Charles's methods of augmenting his revenue. On p. 179 I quote the words of the Bill of Rights concerning the Army, and am forthwith accused of "quoting the Bill of Rights incompletely." Why, my text, for the moment, was concerned only with the Army. Four pages above I had summarised the spirit of the Bill of Rights on other points in four lines and a half; should I have quoted the whole of that lengthy document? I hold that in Old English, *i.e.*, Anglo-Saxon, the late Prof. Freeman and myself were right in finding "no serious traces of Latin or Celtic speech." The few words like "basket," "mattock," &c., once believed to be of Celtic derivation, are clearly shown by the "New English Dictionary" to be nothing of the sort; such Celtic words as remain with us have probably been re-imported from Wales at

¹ The review of this book was published in our issue of September last (vol. xiii., p. 353).

later dates; they do not constitute "serious traces of speech" any more than "aldermannus" would prove the influence of Anglo-Saxon on Latin. "Rebel" was, perhaps, too strong a word to use for Duke Robert on p. 57; but certainly not too strong for William of Mortain and Robert of Belleme, who were the real backbone of the Normans at Tenchebray.

Criminals *were* certainly tried by a jury of presentment (my words were "some sort of jury") in Henry II.'s reign (see Stubbs's "Select Charters," pp. 143-4); possibly I should have mentioned the ordeal also, but it would have complicated the main argument and would have been rather difficult for children to grasp. I know that Richard I. was captured first by the Duke of Austria and then handed over to Henry VI.; but the important persons for the young readers to grasp are the two Kings, not the agents in the capture. Never for a moment did I state that Simon de Montfort was a "thorough Englishman"; on p. 77 I said the barons were "now thorough Englishmen," and almost a page later I said that Simon de Montfort, Earl of Leicester, was the barons' chief spokesman; perhaps I should have added, "though of foreign origin on his father's side," as, indeed, were many of these barons, though now, since the loss of Normandy, they had become "thorough Englishmen." That the House of Commons at the end of Edward I.'s reign (I am summarising, in the incriminated passage, the Constitutional results of that reign) "generally met at the same time as the House of Lords" is, I maintain, a fair statement of the truth; perhaps I ought to have added that as yet both Houses sat in the same Chamber; but ought I to have told the children the dates of each session, and the numbers of sessions? Does your reviewer know them? Frankly, I do not know them. It is also surely true to imply that the King wanted the clergy to be represented in Parliament, but that they preferred not to be so represented.

I never said "Avignon was in France" (p. 89); but I know that Clement V. as Pope resided at first in his own bishopric, at Bordeaux, though he moved later to Avignon (where he stayed in a monastery), and that it was John XXII. who first definitely established the papal seat there; Avignon, though not French territory until 1790, left the Pope pretty much at the mercy of the King of France from the fourteenth century. I never said, or implied, that Englishmen "took goods to Spanish America" in the reigns of Edward VI. and Mary; I said they "took them to all countries where they could find a market for them" (see, for a summary of the English voyages and adventures of these reigns, Longmans' "Political History," vol. vi., pp. 302-5, by Mr. Pollard). All James I.'s Parliaments were dismissed in anger, except the last, and James was dismissed from the world before he could dismiss this one—he died while it was sitting. Volumes have been written on the "sale" of Charles I. to the Scots; perhaps the best summary is in Mr. Lang's "History of Scotland," vol. iii., pp. 181-2. The one thing clear is, that there was a large sum owed to the Scots by the English Parliament, and that the Scots agreed to surrender Charles if the Parliament would pay half that sum down and the rest by instalments; was not this a "sale"? I should, perhaps, on p. 148, have written "the covenant was signed all over Scotland, but not at once." But the Scottish Parliament voted that it should be signed by all, and in the end there were probably few Scots who were not compelled to take it; did the reviewer expect me to go into the question of the resistance of some university graduates, of the Gordons, and of the town of Aberdeen—in a short school history of England? If the Pilgrim Fathers were "not Puritans," I should like to know what they were (p. 166)? I know that William of Orange had

Catholic allies, but that did not make him any less the leader of Protestant Europe; I did *not* call him "champion of Protestantism."

On the causes of the war of 1739 with Spain, there is, of course, much to be said on both sides; but your reviewer might perhaps have treated me more fairly if he had read Mr. Armstrong's "Elizabeth Farnese," and vol. ix. of Longmans' "Political History," especially pp. 280-4, 309-10, 324, 349, 362; I was only summarising the matter for children. Mr. Pitt certainly *did* send regiment after regiment to help Prussia in Germany; does your reviewer mean to catch me out with the quibble that these regiments (which undoubtedly saved the Prussian cause) fought their battles in other parts of Germany, though under the command of a Prussian general? I was not speaking of the treaty of 1778 (and my text makes it perfectly clear that I was not), but of that of 1783, when I said that "France received no commercial privileges from America"; for those privileges which France got in 1778 endured for the period of the war, but no longer; this is a peculiarly flagrant instance of your reviewer's deliberate perversion of my words. Nation after nation *did* rise against France between 1793 and 1802, as well as between 1805 and 1815; am I to give the whole history of the revolutionary and Napoleonic era to refute my calumniator? No doubt Napoleon had not decided when the storm burst upon him what to do with Portugal, but it is not likely that he ever intended to keep the Treaty of Fontainebleau; Marshal Junot certainly believed that *he* was to have at least a portion of Portugal; Murat was unquestionably offered his choice between Portugal and Naples, when, to his dismay, he found that Joseph was to become King of Spain. All Indian princes do, I believe, take an oath of fealty to King George; although perhaps for "sworn subjects" I should have written "sworn feudatories"; the latter would, however, have been more difficult for children to understand. I do not know where I was wrong in saying that "Egypt came to us in 1882" (after the victory of Tel-el-Kebir and the withdrawal of the "dual control"); your reviewer might consult on this point Mr. Herbert Paul's "History of Modern England," vol. iv., p. 252 sqq.

Throughout this long answer I have purposely avoided all discussion of points which could be matter of controversy, *e.g.*, whether the Prayer Book of Elizabeth (based upon the undoubtedly Protestant Second Prayer Book of Edward VI.) is "Protestant" or no; but surely there must be few Englishmen who would not, if only for the sake of its language and our inheritance in it, allow me to call it both "dear" and "beautiful."

C. R. L. FLETCHER.

Athenæum Club, S.W.,
February 11th, 1912.

SUCH phrases as "ignorance," "unfairness," "deliberate misquotation," are unsuitable for the pages of THE SCHOOL WORLD. I decline to answer such charges, but can inform Mr. Fletcher that I read all the volumes of Longmans' "Political History" as they appeared (and reviewed them for this periodical).

To three of my criticisms he agrees in express terms, and to two others (those on James I.'s Parliaments and on Simon de Montfort) practically. Others, on the size of the hide, the sealing of Magna Carta, ordeal, Richard I.'s capture, and on feudatories, he allows are correct, but thinks correctness would introduce difficulties "for children"—*e.g.*, that "seal" would be more difficult than "sign." I proceed to answer as briefly as possible his further complaints:—

(1) In his book he speaks of "Parliaments growl-

ing at Wolsey's extravagance," of Wolsey "plunging" into a war with France, and says Wolsey had no plans for the reform of the Church. I have described this as "ludicrously incorrect," to which Mr. Fletcher thinks it sufficient to reply that a Parliament was dissolved the day Wolsey became Chancellor. Does he mean to add this to the one Parliament which Wolsey summoned, and which "growled, &c."

(2) Luther is certainly described in many books as a "monk," and when I wrote to Dr. Prothero *apropos* of the "Cambridge Modern History," he agreed that I was right, but did not think the matter important. Still, it is as easy to write "friar" as "monk."

(3) Wesleyans describe their Church as "Wesleyan Methodist." Still, as popular usage drops the "Methodist" in this case, Mr. Fletcher is, as he says, "not far" wrong.

(4) It is true that Edward VI. repealed all *statutes* against heresy, but heretics could be, and were, burnt in his reign, under the common law.

(5) In 1415 there were three popes, two of whom were deposed or made to resign in that year: not one of them was in Rome, and Martin V., who returned to Rome in 1418, was not elected until 1417.

(6) Edward I. did seize the wool of the clergy; but note these dates: outlawry in January, practical suspension thereof in March, seizure of wool in April. Could it have been "by way of precaution"?

(7) The clause of "Confirmatio Cartarum" (though not the "De Tallagio") contains a saving clause in which is contained the germ of the Stuart struggle on the matter.

(8) That saving clause, and the fact that what legal decisions were given in the reigns of James I. and Charles I. (Bate, Hampden) were in the King's favour, are the considerations which cause hesitation in calling their taxation illegal. After Parliaments called it so; but Mr. Fletcher surely does not regard Parliamentary declarations as infallible.

(9 and 10) If Mr. Fletcher had added the word "freemen" to the word "all" in his account of Magna Carta, and if he had said villeinage was "dying" instead of "dead," I would not have found fault.

(11) Neither Henry VI., Charles I., nor Charles II. was Prince of Wales (Haydn's "Book of Dignities").

(12) The clause about the army in the Bill of Rights contains the phrase: "Without consent of Parliament." It is the omission of that clause to which I referred.

(13) If recent etymological research doubts the Celtic words in old English I apologise, but, apart from ecclesiastical words, names of places were affected by Latin.

(14) Against whom were Mortain and Bellême "rebels" when and as fighting for Robert? They had a double allegiance.

(15) For Summons of the Commons, 1295-1302, see Stubbs's "Constitutional History," chapter xiv. (with note at end) and chapter xvi. What was the "struggle" over clergy representation in Parliament? I know only of a drift.

(16) On p. 89 Mr. Fletcher says: "The King of France . . . compelled the Pope to come and live in France. For seventy years this 'captivity' of Popes lasted"; and in the continuation of this sentence he uses, quite rightly, the phrase "French Pope." What are "the children" to infer from this?

(17) The side-note on p. 133 expressly says "in America." Mr. Pollard has no mention of English goods exported, only of piracy.

(18) I leave Mr. Fletcher his definition of "sale": it is not mine, and Charles I. himself was anxious to

get to London. He did not like his Scottish "hosts."

(19) The addition of "almost" to the phrase "all over Scotland" (p. 148) would have put the matter right. Though even so, one thinks of the Gaelic Highlanders. Did *they* sign it?

(20) The "Pilgrim Fathers" were Separatists, not Puritans. For their controversies with the Puritans, see Hanbury's "Historical Memorials," and for a brief statement of their position, see a small "Primer of Free Church History," by A. J. Evans (Allenson, 6d.), or President Taft's speech at the inauguration of a monument in the neighbourhood of New Plymouth some few months ago.

(21) I did not accuse Mr. Fletcher of calling William III. "a champion, &c." But of the Powers of Europe at that time, Protestant Sweden was neutral, Protestant Denmark was almost so. German Protestants fought Louis XIV., not as Protestants, but as Germans. Only England, and possibly "Holland," fought as Protestants against France, and they were helped by Catholic Austria and Catholic Spain.

(22) If Mr. Fletcher had inserted the word "smuggling" between the words "our" and "trade" on p. 189, he would have briefly expressed what has never been doubted by historians—that the English traders were exceeding the terms of the Asiento.

(23) It was not "nations" that rose before 1802; it was "governments." The "nations" were born afterwards.

(24) "Egypt came to us" will certainly be understood by "children" as meaning that it belongs to us. Does it?

On the two or three other points mentioned by Mr. Fletcher it is not worth while merely repeating my former criticism. Your readers must judge between us.

THE REVIEWER.

Circular Permutations.

THE prominence you have given to Mr. G. E. Crawford's problem on ring permutations and the obvious interest it aroused prompt me to seek the assistance of your columns in solving a similar problem set in December, 1906, at the Cambridge Senior Local Examination.

The question was as follows: "If there are p letters a , q letters b , and r letters c , find the number of ways in which they can be placed in a circle."

The answer commonly given is $\frac{p+q+r-1}{p!q!r!}$, but that

this is wrong easily follows by testing with the values $p=q=r=4$, when a fractional result is obtained. My efforts to get into communication with the examiner who set the question were fruitless, and nowhere have I seen this problem treated or even referred to. Can you assist me?

C. H. BENNETT.

I AM not surprised that Mr. Bennett's efforts to communicate with the examiner "were fruitless." If examiners could be heckled their lives would be unbearable! But this problem affords an excellent example of the danger of the theory that "cramming" is prevented and capacity tested by setting questions off the beaten track. In such cases the examiner is almost as liable to trip as the candidate himself. But worse follows. For, in this case, the student who

sent up the answer $\frac{p+q+r-1}{p!q!}$ without verification prob-

ably received full marks; whilst he who (being more careful or more intelligent) tested his result and found

it wanting would most likely (concluding that it was utterly wrong) not even send up his attempt. The superficial candidate might gain distinction, whilst his abler brother, having wasted valuable time and energy, might fail. Not one in a hundred (perhaps not one in a million) under the time-stress of an examination would discover the truth.

Is the formula mentioned as "commonly given" (presumably by pupils or colleagues, if it cannot be found in books) *right* or *wrong*? I have rarely met such a beautiful illustration of the "categorical reply" fallacy. The formula is neither absolutely right nor absolutely wrong. Yet it is not, in the strict sense of the words, partly right and partly wrong. Nor can it properly be described as even approximately right; whilst to state, baldly, that it is wrong would be an abuse of language.

The fact is that the formula is sometimes right and sometimes wrong, as the following table (where for simplicity only two different letters are used) will show clearly.

Table showing the number of arrangements (N) of $p+q$ things in a circle, when p are alike of one kind and q alike of another kind; and also the value (x) of the formula $\frac{p+q-1}{p \cdot q}$.

p	1	2	2	3	3	3	4	4	4	4	5	5	5	5	5	6	6	6	6	6	6
q	1	1	2	1	2	3	1	2	3	4	1	2	3	4	5	1	2	3	4	5	6
N	1	1	2	1	2	4	1	3	5	10	1	3	7	14	26	1	4	10	22	42	80
x	1	1	1½	1	2	3½	1	2½	5	8½	1	3	7	14	25½	1	3½	9½	21	42	77
y	0	0	2	0	0	4	0	3	0	10	0	0	0	0	8	0	4	6	10	0	36

Thus we see that $x=N$ whenever p and q have no common factor; but if p and q have one or more common factors, then the value of x is incorrect.

What is the explanation of this anomaly?

The number of linear permutations of p letters a and q letters b is $\frac{p+q}{p \cdot q} = M$, suppose. Let the number

of circular permutations be N . Then each circular permutation can be broken at $p+q$ places, giving rise to $p+q$ different linear permutations, unless the circular permutation contains repeated sets. Hence, if there be no repeated sets, the N circular permutations give rise to $(p+q)N$ linear permutations. Thus, if $p+q=n$, we obtain $nN=M$; whence

$$N = \frac{1}{n} M = \frac{1}{p+q} \times \frac{p+q}{p \cdot q} = \frac{p+q-1}{p \cdot q}$$

But in what cases are there repeated sets? Take the case of 4 letters a and 2 letters b . Such cycles as $aaaabb$, $aaabab$, &c. (containing no repeated sets), can each be broken into 6 different rows. The cycle $aabaab$, however, can only be broken into 3 different rows. There is no other cycle containing a repetition in this case. (The cycles $abaaba$, $baabaa$ are the same as the preceding cycle.) Thus on account of this cycle we have $6-3=3$ rows less than otherwise. Hence instead of the equation $6N=M$ we must write $6N-3=M$; whence $N=\frac{1}{6}(M+3)=3$.

To make the matter quite clear take the case of 4 letters a and 4 letters b . Here we have two common factors, 2 and 4; hence we must have at least two cycles containing repeated sets. The cycle $aabbaabb$ gives rise to $\frac{8}{2}=4$ rows instead of 8, for which we must subtract $8-4=4$ from $8N$; and the only other such cycle, $ababab$, gives rise to $\frac{8}{4}=2$ rows instead of 8, for which we must subtract $8-2=6$ from $8N$. Thus our equation is $8N-4-6=M$; whence $N=\frac{1}{8}(M+10)=10$.

If we try to generalise the work we see that $nN=M+y$, where y is determined as follows. Find

all the common factors of p and q . Let these be 2, 3, 6, &c.; and let $\alpha, \beta, \gamma, \&c.$, be the numbers of different cycles respectively corresponding to division into 2, 3, 6, &c., repeated sets. Then

$$y = \alpha(n - \frac{n}{2}) + \beta(n - \frac{n}{3}) + \gamma(n - \frac{n}{6}) + \dots$$

Now there is no general algebraical formula giving the number of factors of an unknown number p . Hence there can be no such formula to determine y . Thus the problem appears to be insoluble in the general case. But any particular case can be solved in the above manner, and the corresponding values of y are given in the table.

Similar remarks apply to the wider problem instanced by Mr. Bennett. His rejected formula holds so long as p, q , and r have no common factor (to all three); but otherwise no general algebraical formula for the required number of permutations exists. In the particular case where $p=q=r=4$, we get $x=2887\frac{1}{2}$, which Mr. Bennett rightly denounced as absurd. But $y=16(12 - \frac{12}{2}) + 2(12 - \frac{12}{3}) = 114$; whence

$$N = \frac{1}{2}(M + 114) = 2897,$$

which should be correct.

Can these or similar results have any bearing upon hitherto unexplained discrepancies in physical phenomena?

R. WYKE BAYLISS.

Whitgift Grammar School.

The Question of Sequence in Geometry.

The abolition of Euclid and the substitution of a subject called "School Geometry" has hitherto given rise to a difficulty which has been referred to recently in print, namely, the want of some standardised sequence of propositions in geometry. The difficulty in obtaining uniformity is that every teacher probably has his own methods, which in his hands succeed better than any other methods, but which would not be so successful in the hands of another teacher.

There is, however, one fixed sequence of geometrical propositions which, on the ground of practicability, has much to recommend it, and that is Euclid's sequence. The time appears to have come for considering, or perhaps reconsidering, whether this sequence would not be, on the whole, the best to adopt.

It need hardly be mentioned that had any writer brought out a school geometry based on Euclid's sequence ten years ago nobody would have bought the book, but it is not improbable that at the present day the result might be different.

It is important to notice that the question of the order of sequence is a very different thing from the question as to how geometry is to be taught. I have always considered that the great hue and cry that was raised against Euclid some ten years ago was rather beside the point. The defects of the old methods of teaching Euclid largely arose from the facts (1) that a boy who could not solve riders was thrown back on learning the bookwork more or less mechanically, and (2) that he acquired no grasp of its practical meaning. These defects have been remedied (1) by the introduction of exercises in constructive geometry to be performed with drawing instruments, and (2) by preliminary work in experimental geometry, in which geometrical truths are tested by trial and observation. The main disadvantage of Euclid itself, as distinct from the defects of the methods of teaching it, arises from the facts (1) that a great many propositions in Euclid are so self-evident that it is undesirable to occupy the time of schoolboys in proving them, and (2) that it is desirable to admit the use of geometrical constructions other than those admitted in Euclid's three postulates.

This certainly implies that many of Euclid's propositions have to be omitted, or discussed by new methods; but is there anything very impossible in retaining the remaining propositions in the sequence in which they occur in Euclid?

It may be the opinion of many teachers that this sequence is not in the circumstances the best to adopt. But is it not the fact that even a bad sequence if recognised as the standard would be better than no recognised sequence at all? And there are probably many teachers who after about ten years' experience in teaching geometry would be glad to go back to Euclid's sequence.

The abolition of Euclid has had one good result. It made it impossible for teachers to continue to teach geometry in the old way. If Euclid's sequence were now restored there would be no danger whatever of a reversion to the purely abstract geometrical teaching of our early school days, for experimental and practical methods have become so deeply rooted in our midst that nothing would eradicate them. The question thus suggests itself, whether the revolution of ten years ago has not accomplished its object, and whether it is not possible to restore order by re-introducing the old sequence. G. H. BRYAN.

Independent Pension Schemes.

A PERSONAL paragraph in THE SCHOOL WORLD for February says that whereas I "have been regarded as a real friend to assistant-masters," my speech at the Headmasters' Conference on (Government-) "pensions for teachers in secondary schools" has caused "disappointment," and the deduction appears to be that I have been found out and shown up in my true colours.

Well, I hold, and said in my speech, that one of the worst things that could happen to the teachers would be conversion from professional men into civil servants. I believe it would be bad for them both in pocket and in social consideration, bad for them individually and bad for them collectively. This opinion your paragraphist presumably thinks absurd, and he is quite entitled to say so; but is he justified in attributing what seems to be a motive?

A headmaster—any headmaster—who is not "a friend to assistant-masters" to the best of his knowledge and ability, besides being (1) very possibly a fool, must (2) either be a dog in the manger or some other sort of knave or traitor. I a little resent the latter part of the inference. As to the first part, I would only point out that advocacy of an independent pension scheme—which is of the nature of deferred pay—is quite consistent with my view (also expressed in my speech) that teachers "should be paid well enough to enable them to pension themselves," and in no way inconsistent with a distrust of Government control. Are our professional colleagues, the doctors, finding the State an entirely satisfactory taskmistress and paymistress? R. CARY GILSON.

King Edward's School, Birmingham,
February 28th.

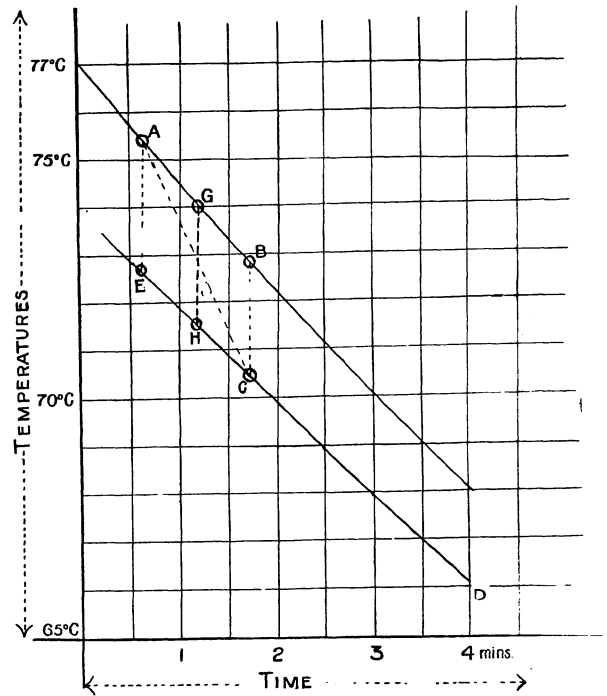
I AM sorry to find that Mr. Cary Gilson reads into the paragraph about him something more and something quite different from anything I intended. I chronicled disappointment that does exist, but I certainly drew no such deduction as he suggests, nor do I regard his opinion as to the inclusion of teachers in the Civil Service as absurd. I appreciate, and I know masters appreciate, what Mr. Gilson has done for them and for education.

The relative merits of a national pension scheme and of independent pension schemes, and the advantages or disadvantages of Government control,

are subjects on which all educationists are entitled to hold their own opinions, and those held by Mr. Cary Gilson will always receive the careful consideration of the profession of which he is so distinguished a member. ONLOOKER.

The Determination of Specific Heats.

THE method differs from the usual method of mixing in that no attempt is made to prevent loss of heat by radiation—a vain endeavour under ordinary conditions in class or at examinations—neither is any attempt made at compensation, but the rate of loss of heat is determined, and hence its elimination in the final working. The apparatus required is only of a simple nature, being an ordinary 300 c.c. flask and a thermometer (which students can be trained to read to $\frac{1}{10}^{\circ}$ C.) The method of working the experiment is as follows:—



EXPERIMENTAL VALUES FOR COOLING CURVES.

1st Curve.

Time	Temp.	Time	Temp.	Time	Temp.
0 mins.	76.9° C.	3½ mins.	69.1° C.	7 mins.	62.8° C.
½ "	75.7° C.	4 "	68.1° C.	7½ "	62.0° C.
1 "	74.5° C.	4½ "	67.2° C.	8 "	61.2° C.
1½ "	73.3° C.	5 "	66.3° C.	8½ "	60.4° C.
2 "	72.2° C.	5½ "	65.4° C.	9 "	59.6° C.
2½ "	71.1° C.	6 "	64.5° C.	9½ "	58.9° C.
3 "	70.1° C.	6½ "	63.6° C.		

2nd Curve.

Time	Temp.	Time	Temp.	Time	Temp.
0 mins.	77.7° C.	2½ mins.	69.4° C.	5½ mins.	64.1° C.
½ "	76.5° C.	3 "	68.4° C.	6 "	63.3° C.
1 "	75.3° C.	3½ "	67.5° C.	6½ "	62.5° C.
1½ "	74.1° C.	4 "	66.6° C.	7 "	61.7° C.
		4½ "	65.7° C.	7½ "	60.9° C.
2 "	70.4° C.	5 "	64.9° C.	8 "	60.2° C.

Fill the flask about one-third full of water and heat up to about 80° C., and then place it on a bench out of all draughts and away from any possible source of heat. Find the cooling curve for the apparatus by reading the temperatures as indicated by the thermometer (the bulb being well immersed in the water), every half-minute, and plotting these values on squared paper. Now heat the water up to about the original temperature, and again begin to find its rate of cooling, and as soon as the student has satisfied himself that it is the same as in the first part of the experiment pour into it a known weight of the given metal (having previously determined its temperature), noting exactly the temperature and time; *i.e.*, the point on the graph, at which this is done, and continue taking readings. Plot these values on the same paper as the original cooling curve.

For simplicity in working it is best to arrange that the first part of the second graph should coincide with the original one. This can easily be done by making some slight alteration of the time axis for the second graph, and this has been done in the above diagram. The two graphs when completed should be similar to those drawn. A is the point at which the metal is placed in the flask, and C is the next half-minute reading. It will be immediately seen that as the rate of cooling in the second case was originally exactly the same as in the first experiment the difference in position of the second part of the second graph is due to the absorption of a certain amount of heat by the metal, which absorption can be found from the graph in the following manner. The graph DC needs to be produced backwards to E as accurately as possible, and the amount the metal has cooled the water will be represented by the line GH (being the mean between BC and AE). Knowing this value and the weights of the water and metal used, the calculation is similar to specific heat calculations by other methods with the exception that the water equivalent of the apparatus is negligible.

The following is a typical calculation:

Weight of flask = 30.40 grams.

Weight of flask and water = 111.11 grams.

\therefore Weight of water = 80.71 grams.

Weight of lead (shot) used = 125.2 grams.

Temperature of lead when put into the water = 164° C.

The water was cooled 2.6° C. by the lead (obtained from the graph), *i.e.*, temperature of lead and water after mixing (ordinary cooling being eliminated by the graph) should be $(75.3 - 2.6)^{\circ}$ C. = 72.7° C.

Rise in temperature = 72.7° C. - 16.4° C. = 56.3° C.

\therefore Heat absorbed by lead = $(56.3 \times 125.2 \times S)$ calories
(S = specific heat of lead).

Again, fall in temperature of water = 2.6° C.

\therefore Heat lost by water = $(2.6 \times 80.71) = 209.85$ calories.

But heat absorbed by lead = heat lost by water,

i.e., $56.3 \times 125.2 \times S = 209.85$,

$$i.e. S = \frac{209.85}{7049} = 0.029(8).$$

C. F. LINNITT.

Secondary School, Devizes.

Pond Life.

CAN any teacher tell me which of the following creatures will live peaceably together in an aquarium: sticklebacks, tadpoles, newts, great water-beetle, whirligigs, caddis worms, water boatman, water gnat, water scorpion, gnat, water spider?

M. GURREY.

The High School, Alderley Edge, Cheshire.

Of the pond creatures Miss Gurrey mentions, the water scorpion and the water boatman and the water beetle (if the carnivorous *Dytiscus marginalis*) should each be kept apart from any other animals, being fed on raw meat or blow-fly pupæ.

Water spiders are best alone, because other creatures are apt to disturb and damage the beautiful little thimble-shaped "air-houses" which they form below the water.

Sticklebacks are best alone, for other animals might disturb the nests the male sticklebacks construct in the spring; and also they are pugnacious little fish, and are apt to annoy other creatures. It should be remembered that sticklebacks are delicate fish, and should only be kept as a visitor for a very short time in a tank unless running water can be supplied them; they are best fed on blood-worms.

The large silver water-beetle (*Hydrophilus*) is a vegetarian, and may be kept with tadpoles or newts; also caddis-worms will live in any well-aerated tank with other creatures.

Gnats are best kept alone in a small tank of rain-water with decaying leaves at the bottom.

Newts should not be kept with tadpoles, for they will bite their tails, and may even do more serious harm. Miss Gurrey should study Furneaux's "Pond Life" (Longmans).

R. B. J. LULHAM.

Honour to whom Honour is due.

I NOTICE that in your full and interesting notice of the abridged edition of Murray's "Early Christian Biography" your reviewer credits me with the article on "Pelagianism and Pelagius." I should be delighted to be the writer of it: but this is a mistake. The writer has misread the initials "W. I." (William Ince) for "W. L.," and the praise which you bestow on the article must pass over to him.

W. LOCK.

Warden's Lodgings, Keble College, Oxford.

IF "W. I." stands for William Ince, the initials and name should appear on page x in the List of Writers. But they do not. And as I noted that there was no clue to the initials "W. I.," that no other article but "Pelagianism and Pelagius" appeared above those initials, whereas several appeared above "W. L.," I naturally concluded that "I." was a printer's error for "L." It is obvious the compiler of the Index has so misread it, and it is an important matter for correction in a new edition. I thank Dr. Lock for directing attention to it.

THE REVIEWER.

March 20th, 1912.

The School World.

A Monthly Magazine of Educational Work and Progress.

EDITORIAL AND PUBLISHING OFFICES,
ST. MARTIN'S STREET, LONDON, W.C.

Articles contributed to "The School World" are copyright and must not be reproduced without the permission of the Editors.

Contributions and General Correspondence should be sent to the Editors.

Business Letters and Advertisements should be addressed to the Publishers.

THE SCHOOL WORLD is published on the first of each month. The price of a single copy is 6d. Annual subscription, including postage, 7s. 6d.

The Editors will be glad to consider suitable articles, which, if not accepted, will be returned when the postage is prepaid.

All contributions must be accompanied by the name and address of the author, though not necessarily for publication.

The School World

A Monthly Magazine of Educational Work and Progress.

No. 161.

MAY, 1912.

SIXPENCE.

THE USE OF THE DRAMATIC INTEREST IN LATIN TEACHING.

By the Rev. A. PARKER MASON, M.A.,
Perse School, Cambridge.

ALL teaching on modern lines rightly seeks to arouse interest in the pupil. The problem often is both how to arouse and how to keep that interest without which the work is to a great extent useless. With younger pupils the point of the greatest importance is to keep them occupied on some genuinely useful piece of work, and to give them the impression that they are doing something which is not irksome and is really work. In language teaching, after the very earliest stage is passed, an appeal to the dramatic instinct of the boy or girl proves very efficacious; and this has been utilised of recent years in French teaching. But it is equally efficacious in the teaching of Latin, where this is conducted on the oral method.

In the first year the pupils will have mastered all the elementary accidence, and have learnt a certain facility of expression in the simplest Latin sentences. The class, too, will be accustomed to chorus repetition of grammar, etc. The problem of the second year is to give the individual a facility in expression of his ideas in Latin, and to enable him to understand written and spoken Latin with greater ease. Then comes the difficulty of choice of texts. Actual Latin texts—finished literary productions—are too hard or not appropriate. For not only is easy Latin required, but interesting Latin; and it is not possible to find the combination in actual texts that can be put in a boy's hands. Teachers have tried their hands at adapted and simplified texts; which are good as far as they go. But they often tend to be dull. Their didactic purpose is too obvious, and, though good work can be done with them, the conversation founded on them tends to become dull and

lifeless. This was found by the writer after an attempt at giving a class the Romulus and Remus story in an adapted form. The class was distinctly bored. Then the idea, borrowed from experience in modern language teaching, occurred—why not try to utilise that dramatic instinct the class-room rules generally require to be kept under?

So a scene from the story was taken and dramatised. The class was quite an average one: it was at the beginning of the second year of its Latin course; and it consisted of boys of an average age, 13 years 5 months, one or two old members considerably raising the average. And the numbers of the class were moderate, so that it could be arranged that all should have a speaking part.

The scene was to represent a court of justice. It commenced with the arrival of some soldiers bringing the captive Remus before the judge, who was a boy raised for the nonce to the coveted eminence of the master's chair, as *Judex*. The enquiry proceeds, and the tyrant Amulius intervenes, and also Numitor with his *Villicus*, chiefly introduced as it happened to correspond with a boy's name in Latin. Later on Romulus arrives with his soldiers to the rescue. A recognition scene follows. Amulius amid great enthusiasm is forced to resign, is tried, and is executed. The latter scene "takes" extremely well: the only difficulty is to prevent the enthusiasm becoming too apparent to one's neighbours.

This outline will indicate the type of subject and the way in which some interest that is appreciable by boys, and I should think girls also, can be aroused.

The subjects treated, of course, should not be stereotyped. A Roman dinner, a council of war, a Roman school scene (everyone can elaborate the list for himself or herself), can all be included. The difficulty may be felt that there are no texts or books on the subject; and it is quite impossible that there should be, for

the dramatis personæ must be adapted as far as possible to the class, and, as we insisted before, be adapted to the numbers of the class present. This requirement results in forcing the teacher to compose his own little play. It need be nothing elaborate, and there is this advantage. When he has composed his piece, it has to be communicated to the class; there are various ways of doing this, but the best way seems to be by taking a unit of the piece and going through it orally with the class, explaining new words, etc., which will be written down in the boys' vocabularies, kept in their note-books. Then the teacher will go through the passage again, making the class repeat the sentences in chorus after him. Finally, it will be dictated. This is no mere waste of time. If the pronunciation has been correctly and carefully taught, the boys can write down a piece in their note-books with next to no mistakes; and there is the advantage of employing hand and eye and ear at the same time. The class is writing correct Latin, though it may not be of its own composition, and that is much gained. Everything of the sort is a real help. Then parts will be assigned; and the members of the class can be heard read their own parts. The speeches had best be learnt then. There is not too much ahead of the class. Then next time it can be acted. And it will be surprising to many to find how the class has taken care to get up its parts. No compulsion has been required over *that* home-work.

When the first portion has become clear to the class, we proceed to the next in the same way, and so on through the whole piece. It is as well that each individual play should not be too long, as the members of the class who are unoccupied for more than ten minutes tend to become inattentive. An ideal length is probably about twenty minutes of recitation or acting.

A few selections from the piece mentioned will give readers an idea of the method intended, but it should always be remembered that spontaneity is everything, and that what is given is merely a suggestion of the lines on which the teaching should proceed: it must really vary according to the requirements and numbers of each class, and therefore there can be nothing stereotyped or printed for teachers' use, except by way of suggestion.

FORUM.

Intrant milites cum captivo latrone, quem inter silvas ceperunt, apud iudicem qui sedet in consilio.

Iudex. Quis est hic, quem fertis vobiscum in ius?

Primus miles. Latro is pessimus est, qui. . .

Tribunus militum. Tu tace, O abominande, quia ego ipse tribunus tuus sum, et tu es miles: itaque ego

debeo respondere, non tu; pessimus quisque semper vult dicere, quom magistri eorum respondere debent, et ego supplicium de te sumam, si. . .

Iudex. Sileant omnes; et audite me. Nolite inter vos certare: si certabitis, omnes in vincula iaciam.

Tribunus. O maxime iudex civum, audi querelam meam. Hic pessimus captivus.

Captivus. Non sum pessimus, sed optimus et nobilis defensor pecorum contra hos pessimos. . .

Iudex. Tace quàm celerrime, vel pœnas dabis antequam de te narrationem audiero. Iam, tribune, dic nobis vera de hoc captivo.

Tribunus. Quum iremus nos quieti per silvas et conaremur invenire pecora nostra et greges nostras, hic pessimus latro. . .

Captivus. Non sum pessimus latro.

[The conversation is continued (we have no room for it all) until]

Intrat Amulius.

Amulius. Quale est hoc iudicium, quod nunc agitur in foro?

Iudex. De latrone aliquo, rex optime, qui greges et pecora fratris tui, Numitoris, vastavit, et. . .

Amulius. Arcesse Numitorem. Cur non adest possessor gregum et pecorum, si de eius gregibus et pecoribus indicatur? Semper huius hominis me taedet.

Procurator. Ecce Numitorem.

Amulius. Cur non antea aderas, carnifex? Si indicatur de tuis, debuisti adesse. Nunc quid dicis?

Numitor. Noli me culpare aut mihi maledicere, frater carissime, quia nunquam cupio te dolere. Sed nesciebam quemquam accusari furti. . .

Amulius. Tace; scis nullas tibi esse greges; omnes enim meae sunt. Nemo alius in patria possidet quicquam. Tu nihil possides.

[Then follows the recognition scene, and after that we proceed.]

Amulius. Proditores omnes undique sunt. Quis adhuc paret mihi, regi vestro?

Omnes. Nemo iam paret tibi, tyranne.

Amulius. Ferte auxilium, cives et milites mei. Ubi estis?

Omnes. Abdica, tyranne: non diutius regnandum est tibi.

Amulius. In malam rem omnes. Vos facti pœnitēbit: polliceor me omnes postea puniturum esse. Certe omnes in tormenta coniciam, et trucidabo.

Omnes. Nunquam hoc facies; omnes te oderunt; itaque dicimus iterum, "Abdica, tyranne."

Amulius. Quid mihi faciendum est? *Iudex,* dimitte omnes e foro.

Iudex. Nunquam imperanti tyranno parebo: tu non es diutius rex meus. Nec licet tibi imperare.

[And so on, with a short attempt by an "Orator" to prove Amulius's innocence.]

Latrones et alii. Iudica tyrannum, iudex; et cave ne eum absolvas.

Iudex. Non cupio eum absolvere: itaque condemno eum capitis.

Omnes. O optime et iustissime iudex: semper parebimus tibi. Quamquam non es, iudex, rex noster, tamen benevolentissimi semper erimus erga te ob hoc iustum iudicium.

Iudex. Cupisne aliquid dicere, tyranne?
Amulius. Insons sum: noli me interficere. Misereat te mei casus, frater.
Numitor. Non te miserebat ignominiae meae. Abducite eum, milites, in supplicium.
Amulius. Misericordes este erga me, cives.
Omnes. Tu nunquam eras misericors erga cives quos interfecisti.
Procurator. Ducite eum, milites vobiscum. Adsit lictor.
Amulius. Liberate me, furciferi.
Lictor. Inclina collum, sceleste, ut. . . .
Procurator. Quam celerrime perface, lictor.
Lictor. Accipe, tyrannum, ictum huius securis.
Amulius. Habeo: mortuus sum.
Omnes. Habet; mortuus est tyrannus: gaudete, cives; iam gaudeamus omnes.
 Descendit iudex de rostro. Omnes exeunt.

These selections will perhaps give an indication of the type of play meant. Of course, it will be only directly used once or twice a week. Exercises, conversation, and grammar can all be founded on it, and it gives an opportunity to the master to emphasise such constructions as the stage reached justifies. It is a little exacting to the teacher undoubtedly. But proper teaching, nearly always, is so. The teacher must study his class, must adapt the teaching to its capacity, and in this method, where he makes his own text, can do so in the most efficient way possible. Trouble in these lower stages will prove of incalculable benefit later.

THE STANDARDISATION OF "BOYS' BOOKS."

By SYDNEY H. KENWOOD, B.A.

IT is unfortunate that, owing largely to the lack of system in selection and distribution, "boys' books" are seldom the educative force that they can be made. Such works, it is suggested, should be chosen and doled out in accordance with some sound pedagogic plan. For guidance in the formation of such a plan it is well to bear in mind that the history of literary appreciation in the human race is reflected to a great extent in the evolution of the individual æsthetic sense.

In early epic the magic played a great part. The fates of whole nations and kindreds centred round some majestic figure, to which the attention and admiration of readers and hearers were turned with compelling force. The characteristics which made these leaders dear to primeval man are often revolting to us, and out of the question as models for the young. But the childish nature is nearly akin to that of barbarian ancestors, and vibrates readily to the same notes of arrogance, combat,

and revenge. Further, it loves its heroes to be super-men in size, strength, and ultra-human resources.

We have not yet come to think such qualities elementally bad, for we see that the same ultimate instincts which found early expression in bloody combat, gross superstition, and selfish arrogance are in the nobler nature the foundations of moral struggle, of religious feeling, of poetic imagination, of patriotism, and of self-respect. Thus, having softened somewhat these early epics, we can use them with effect as suitable mental pabulum for the very young; that is, for children up to the age of about nine years. It is suggested that books for this period should be judged by the standard of the following: Kingsley's "Heroes," Hawthorne's "Tanglewood Tales," Grimm's "Fairy Tales," "Alice in Wonderland"; and at the end of the period, fairy tales such as those of Hauff and Andersen, which are more or less didactic, and that in a particularly impressive way.

From nine to twelve years of age the boy will require stronger meat. By this time he will have lost, from closer contact with the realities of life, much of his early taste for the marvellous and the obviously impossible. He will retain his love of combat; but the softer virtues will now begin to assert themselves. What is required for him at this age is a very judicious mixture of the physically and the morally heroic. All "boys' books" so aggressively didactic as to depreciate physical courage at the expense of moral should be rejected. We must here, as always, follow the natural method, which is to proceed from the conception of a physical to that of a moral hero by first showing the child a true picture of the real physical hero, who fights for the weak and the oppressed and for what he holds dear, whose code of honour forbids mean and unchivalrous acts. Happily, the number of suitable books is immense. Of such are the following: Ballantyne's "Martin Rattler," "The Coral Island," "Black Ivory," and many others; Gordon Stables's "Hearts of Oak"; Henty's "By Right of Conquest," and others; G. Manville Fenn's "Off to the Wilds"; R. L. Stevenson's "Treasure Island." These few examples will serve to show the type of book suggested for this impressionable age. The boy's ideals of a gentleman are largely formed at this period; and if only the doses of morality be not too large—writers constantly forget that any but strictly homœopathic doses only repel—there is no reason that the boy should not feel, when at last fully conscious of existence, that his ideal, if somewhat crude, was at least no low one. Hero-worship is the earliest idealism.

Such school-tales as are really good and life-like (and of these there are but few) are of greatest service in the next period, from twelve to fifteen years. It seems ungracious to criticise so admirable a book as "Eric"; yet quite a number of boys vote Eric a "prig," and Williams a creature lower still. The story is too palpably "cautionary" to effect much in many cases; yet, as one of the lamentably few attempts to "talk straight" to boys it should have a place, a very honoured place, in their library. An author who would re-model the book and bring its tone up to date, deleting much and adding little, would earn the thanks of all interested in boys. Other school-tales, otherwise good, suffer from lack of intimate tone. Suggested standards in this class are: "Tom Brown's Schooldays," "The Fifth Form at St. Dominic's," "Stalky and Co."

At the age of fourteen or fifteen years a boy should also have free access to the "Waverley Novels," and to the works of Dickens and Thackeray, especially to those of the latter. It will probably be found that Scott is appreciated, and the two others are half-heartedly "tried" and found wanting. But some boys are intellectually mature enough at fifteen to understand and appreciate the always simple "moral" of a Thackeray novel, and we have no right to deprive such of suitable food for reflection of a more serious though still superficial type. Choice of books will have to be left largely to the readers themselves at this stage if we are to avoid the fatal error of "setting" a small selection of our own.

It is surely a mistake to suppose that the moral value of reading can be gauged by the number of books read. The "skimming" of books is responsible for much modern bad memory and lack of concentration. It is difficult to avoid this if reading is to be what it ought to be, a pure pleasure. Examinations, oral or written, on tales read naturally destroy the feeling that they are not connected with systematic forced labour. Yet it is not impossible, if parents and schoolmasters be really the friends of boys, to talk in a thoroughly informal and familiar way on the books supplied. All children hunger for further light on their heart-enshrined idols. The longing lasts even into later life, and the "sequel" is produced to meet this demand. Any information, or even an opinion, on a boy's favourite book is gladly welcomed if it smell not of the sermon or the schoolroom. Neither parents nor schoolmasters have any general power of talking sanely to boys; most of us, in varying degree, usurp the pedestals of household and school gods. If a child know that the book he is reading is likely to be the subject of a conversation, he will for his own credit's sake

read with attention and slowly, without feeling that any will but his own impels him to do so.

This co-operative scheme naturally calls for wide reading of "boys' books" by parents and schoolmasters, and proposes a further tax on the scant leisure of those engaged in teaching; yet the unwisdom—not to say the immorality—of placing in a child's hands a book unknown save perhaps by hearsay can scarcely be too strongly censured. Even if the tale be harmless, that negative quality implies no right to existence. If a "boys' book" can contribute nothing to *l'homme complet*, it is useless; and there is no place for useless books in a scheme of education suited to an age in which complexity of curriculum appears to increase in inverse ratio to length of school-hours.

Hence arises the need for the standardisation of "boys' books," towards which end this article is intended to offer some few suggestions. The opinion of educationists has for years been expressed against the "penny dreadful," which, after all, is no less useful than thousands of tales which cost more. There is a crying need for a new literary *sous-genre*, the didactic "boys' book," written with psychological knowledge and with high, sane, and appreciative intent.

RECENT FRENCH BOOKS ON ENGLAND.

By DE V. PAYEN-PAYNE.

WHEN the ordinary Englishman is asked what French authors have written about England, he is apt to recollect nothing but the "Notes sur l'Angleterre" of Taine, published in 1871. He may have heard of Paul Bourget's "Etudes anglaises," published in 1888, and if he is a teacher he has probably been told of the well-boomed book of M. Edmond Demolins', "A quoi tient la supériorité des Anglo-Saxons." But how far off does this period of the eighties and nineties seem!

Teachers, however, more than men of other professions, should endeavour to keep in touch with the ideas of other nations on England; for these ideas have often been said to be equivalent to the verdict of posterity. But teachers are not paid sufficiently well to be able to travel, as others do, although they have longer vacations; and again their work has a particularly narrowing tendency, which makes it well for them to recognise that there are more ways than one of looking at current events and trends of thought. Then, if teachers do manage to get abroad they often go to holiday courses, where they congregate with other teachers as narrow as themselves,

and, it is to be feared, talk far more English than they ought. Although the mixing with teachers of other nations is good for them professionally, it does not widen their outlook on extra-professional subjects.

The best-known work of recent years has been "L'Ile inconnue" (1906) of Mademoiselle Fabre de Coulevain, who writes under the pseudonym of Pierre de Coulevain, and it has received the imprimatur of popularity in being translated into English by Miss Alys Hallard (1911). Although interesting in its way it is too shallow to be of any permanent value.

But a far more serious and philosophical study of our character is that of the late Emile Boutmy, the pupil of Taine and the founder of the Ecole libre des Sciences politiques, entitled "Essai d'une psychologie politique du Peuple anglais" of which the second edition was published in 1903 and was translated into English in 1904, with an introduction by Mr. Bodley. He was not a whole-hearted admirer of our modern methods, and, although it is a learned and suggestive volume, it is entirely deductive and makes out the Englishman to be more unsympathetic and unamiable than he really is. He considers our dominating characteristic to be an incessant craving for activity. It makes one think he had judged Englishmen rather from books and from the results of their acts than from knowing any individual English family; and this is true, for he was too short-sighted to see anyone distinctly or to read or write for himself. Almost as serious a study, and a much more flattering one, is that by M. Louis Cazamian, Maître de Conférences at the Sorbonne, "L'Angleterre moderne et son évolution" (1911). It is quite the best book of its kind published of late years, and has received the compliment of translation into English.

Very interesting volumes are those of André Chevrillon, "Etudes anglaises" (1901) and "Nouvelles études anglaises" (1910); in the latter volume is a sound appreciation of Mr. H. G. Wells, who, with Mr. Hardy and Mr. Kipling, is one of the few English writers whose work is taken seriously by the French and to whom *Le Temps* devotes a column review on the appearance of a new work. A keen insight into our manners and ways of thought is shown by the lady whose pseudonym is Fœmina, in "L'Ame des Anglais" (1910). This insight could only have been acquired by long knowledge of us, and we are not astonished to learn that Fœmina was brought up in England. Her pseudonym is said to hide the personality of Madame Bulteau. Her book interests women even more than men. It is curious to note, even in

this non-political work, the universal fear of the French at the supposed downfall of our House of Lords. M. Robert d'Humières, who published his "L'Ile et l'Empire de Grande Bretagne" in 1904, is a whole-hearted believer in our skill as colonisers and rulers of subject races.

A book that gives a useful account—though rather a dry one—of our political and social life is Mermeix' "Angleterre: aspects inconnus." Among others may be mentioned: Mantoux' "A travers l'Angleterre contemporaine" (1909), Victor Bérard's "L'Angleterre et l'impérialisme" (1900), translated by H. W. Foskett (1906); Jacques Bardoux' "Essai d'une psychologie de l'Angleterre contemporaine" (1906), and his "Victoria I., Edouard VII., Georges V." (1911); and Duval's "L'œuvre shakespearienne" (1911).

Of books by special correspondents, which are interesting to read but do not go much below the surface, may be mentioned Jules Huret's "Londres comme je l'ai vu," a companion book to his studies on Berlin, New York, and other capitals; "En Angleterre," by Raymond Recouly, who has also written on many lands, and René Puaux' "Silhouettes anglaises," which would be easier to read if it were not so full of tiresome misprints. The last-named journalist has just been to India to report the Delhi Durbar for *Le Temps*.

But when all is said, and I daresay your readers can point out several serious omissions in this list, there has never been such a monumental work written on England by a Frenchman as Mr. Bodley has written on France, or so careful a comparison between the two nationalities as in P. G. Hamerton's "French and English."

THE TEACHING OF ENGLISH GRAMMAR IN PUBLIC SCHOOLS.

By S. P. B. MAIS, B.A.
Rossall School.

THE latest tendency is so much to direct attention to the importance of English literature that the theorists are in danger of forgetting the grammar. In the Board of Education circular quoted in my previous article,¹ we read that "there is no such thing as English grammar in the sense which used to be attached to the term." Anyone who has taken a low form will immediately discover how absolutely essential it is that the few rules contained in the correct writing of English should be implicitly obeyed. They will be learnt by the inductive method, of course, but they are no less English grammar

¹ See THE SCHOOL WORLD, April, 1912.

rules because of the method by which they are taught. It is quite possible, in the chaotic circumstances which now obtain, to hear of a word like "how" designated as a pronoun, and "then" as a preposition.

Of the two hours allotted weekly to the teaching of English it is quite certain that in low forms the elementary rules of English grammar should be allowed some half hour; as a matter of fact, it is in the lowest forms that there ought to be an agitation for a longer period in which to teach English. Every week some portion of a great author should be read aloud, slowly, carefully, and with every attempt at real elocution that a master can inspire in a boy; a composition written on the selection read; some dictation from a well-known passage, such as Dr. Johnson's letter to the Earl of Chesterfield, with remarks on the author, his life, age, and style; lists of words for spelling, and synonyms for them where possible; and the repetition of some poem like "The Ancient Mariner," with comments thereon. If we add to this the teaching of neat writing, punctuation, and the careful arrangement of thoughts in connected sentences, paragraphs and pages, parsing and analysis, it will be seen at once that two hours is altogether inadequate. Yet every one of these things is of the utmost importance if the boy is to gain any real hold over men as a writer, or to gain any help out of books for his own life.

Practice in letter-writing is, of course, taken every Sunday when a boy writes home; but many indeed are the parents who have to complain of a slipshod method, and of the hurry and brevity of these careless correspondents. In higher forms, paraphrasing, *précis*-writing, indexing, and at length essay-writing, take the place of formal grammar teaching, spelling, and dictation, but still there is not time every week to teach thoroughly every one of the necessary component parts of English.

As well as want of time, here again, as in the literature, there is lack of method. We see boys of thirteen set to write an essay on some abstract theme of the nature of "A stitch in time, &c.," or "Happiness." The result is painful. It is very rarely that a boy low down in the school can frame his thoughts into an ordered form for a composition; how much less then for an essay in which he has to make his bricks without straw!

On the other hand, give nearly any boy *carte blanche* and he will produce in many cases quite a readable poem. As someone wisely remarked, "it is a matter of great comfort to us to know that several of the best lines of our greatest poets were suggested by the end rhyme, not the rhyme fortuitously finding

its place by reason of the inspired thought." That is, suggest to a boy some rhyming endings and he will turn you out something not very far removed from poetry, so long as he is allowed a choice of subjects.

I have a practice in one form of permitting boys, when asked to write a composition on a work just read, to give up either a prose or verse effort. To prove my point that it is possible to get some faint attempt at poetry from a boy by this method, may I quote a stanza sent up by a boy in the lower school, under sixteen, on the subject of Dr. Johnson:

Fat and heavy, and tall and stout,
An ugly sight to the eye;
Swollen of paunch, and racked with gout,
Ever afraid to die.
Whilst his face with trouble and toil is lined,
As he fights with the fear that assails his mind,
The fear of the death that is nigh.

This is merely the first of four stanzas, and not the best. His is not an isolated case, nor is the boy by any means clever; it is simply that he has an ear, a sense of metre, and an interest in the subject.

The ultimate test of the success of your method will be twofold. (1) Will the boy gradually take to reading the best books for their own sakes and give up his spare moments to well-written books instead of the cheaper or brain-rotting magazines? (2) Will the general style of his writing at all times improve, his vocabulary increase, his sense always be obvious, and his constructions pure, limpid, straightforward?

If boys, having heard some part of Gulliver's "Travels," either ask for more or wish to borrow the book, your method is succeeding; if you suddenly find, after years of toil and trouble, that a boy has produced an essay that arrests you by its originality, style, or earnestness, or a poem with a sense of rhythm, at the same time containing thought, then your method is succeeding, you have not lived in vain.

At present such cases are rare, very rare. Outside examinations set by examiners who only require that candidates shall have done some quite needless drudgery, cause masters, who otherwise are not blind, to ruin all taste of literature at its very spring. Inside examinations set by ruthless old men with obsolete ideas frighten young men into an intricate brain-destroying method of grammar-teaching by fiend-inspired formulas. To the former I would recommend Johnson's Preface to his edition of Shakespeare, and particularly that portion of it which reads:

Notes are often necessary, but they are necessary evils. Let him that is yet unacquainted with the

powers of Shakespeare, and who desires to feel the highest pleasure that the drama can give, read every play, from the first scene to the last, with utter negligence of all his commentators. When his fancy is once on the wing, let it not stop at correction or explanation. When his attention is strongly engaged, let it disdain alike to turn aside to the name of Theobald and of Pope. Let him read on through brightness and obscurity, through integrity and corruption; let him preserve his comprehension of the dialogue and his interest in the fable, and when the pleasures of novelty have ceased, let him attempt exactness, and read the commentators.

Particular passages are cleared by notes, but the general effect of the work is weakened. The mind is refrigerated by interruption; the thoughts are diverted from the principal subject; the reader is weary, he suspects not why, and at last throws away the book which he has too diligently studied.

Attention has been directed to the lack of time allowed for the subject, but few hints given as to the method on which the branches other than the literature should be treated. The examination method of reading through a piece of *dictation* three times ought to be adopted on all occasions, so that boys should know always that they are responsible for all stops except those at the end of sentences, that they will have time to correct these at the third reading, and that they will understand the general drift of the passage. Uniformity of writing on one page is rather to be aimed at than a stereotyped standard form for a whole class, some of whom will have a settled firm handwriting at an early age, which it will not benefit them to drop.

It is a good habit to give a printed piece of badly punctuated or totally unpunctuated piece of prose or verse, with the spelling and capital letters all awry, and let the class correct it.

In *paraphrasing* it is necessary to see that the passage needs paraphrasing, that its sense is not immediately clear, and that a clearer conception of the beauty of the extract will be obtained by translation. Grammar, too, can be learnt best of all by giving series of sentences containing common errors, requiring that they should be corrected with the minimum change of words.

Really, after the fundamental principles, there is very little grammar to be learned by rote. The use of the apostrophe in the possessive cases comes very soon to the boy who is on the alert as he reads. In fact, the whole of the grammar, as I pointed out above, must necessarily be learnt inductively, by means of the language which, being our native tongue, must be known before the formal grammar stage is reached. And it must be at all points borne in mind that it is only in so far as it

helps us to express ourselves clearly, interestingly, and with sincerity, that grammar is of any use to us. There are too many subjects already in the public school curriculum which can be defended only on the principle that they are mental gymnastics. There is a theory, too, that it does not matter in the least what we learn at school, as we strive to unlearn it as quickly as possible in the real world. If this be true, it may be as well to teach one subject thoroughly which will be of use to us in every department of life, both at school and after. We are not a literary nation—we have not as a rule literary fathers—it is idle to imagine that the majority of our schoolmasters are literary; but that is no reason why we should not now and at once rouse ourselves from a lethargic acquiescence in a brainless existence as regards the English language and literature, and endeavour to do our part, that in the next generation not only the parent, the boy, and the schoolmaster, but the whole nation may become literary, and be proud of the fact.

There is one matter at the root of all this which calls for the closest attention. Grammar and analysis are matters of great use, but it may as well be recognised generally, as it happens to be the truth, that great writers have by no means all had any preconceived notions on these subjects, but were well able to maintain their own against better grammarians in the world of letters. In the same way among boys, it is not inevitably the best writer of English who possesses the greatest technical knowledge of grammar rules, and, conversely, the boy who has all the grammar at his finger-tips is not always, I might almost say seldom is, the stylist or the successful essay-writer.

If you find analysis useless, cast it from you; it is better to enter into the real literary life halt and maimed without analysis (if it be maimed to be a failure at analysis) than to be an entirely successful grammarian but without literary ability—dull, stultified, a theorist. Or, to put the case as Sir Joshua Fitch puts it, with his fine idealism:

If your scholars do not acquire a positive love for reading, if they do not ask to be allowed to read the whole book or poem of which the extract you take as a lesson forms a part; if you do not find them voluntarily hunting in the library for the other works of some author whom you have tried to make them admire; if they do not feel a heightened admiration for what is noblest and truest in literature, and an increasing distaste for what is poor and flimsy and sensational, then be sure that there must be something incurably wrong in your method of teaching, and that all your apparatus of grammar, paraphrase,

and logical and grammatical analysis will have failed to fulfil its purpose.

One goes into form with an elaborate scheme, and resolves not to allow too prolonged a period of any one branch. You feel how keenly the boys appreciate reading a scene from a play when they are allowed freedom of action and dramatic enunciation, how much they enjoy listening to a sympathetic rendering of a great poem or prose work, how eagerly they strive to obtain the effect of a Hazlitt or a Stevenson after reading or having heard read "Cavanagh the Fives-player," or "On Going a Journey," with what good-will they listen to impromptu remarks—not often witty, perhaps, but honest criticism and helpful praise or blame on any essay lately shown up. Then you introduce a piece of analysis! A good actor is supposed to be able to gauge to a nicety his effect on his audience; does not the schoolmaster experience a thrill of physical discomfort when he introduces a subject of this type, a sense that all keenness unconsciously dies away in the minds of the majority?

The only cure is (to quote Sir Joshua Fitch once more), "Disregard examinations in comparison with your one main object," *i.e.* of engendering a love for literature and an ambition to be literary; all else is secondary to these two great ideals.

It is not as if English were comparable with other subjects in the public school curriculum. Everyone knows that one of the supreme tests of a good education is found by letter-writing. If a boy is allowed to leave a public school without a working knowledge of the Binomial Theorem it may not hamper his future in any degree. But if he is, at the age of eighteen, unable to spell, write, punctuate, or to express himself with any degree of accuracy or reason, it is obviously a serious handicap.

How much more necessary is it then that a drastic process should be put in motion to render the teaching of English efficient, than continually to give up hours a week to teaching geometry, and months a year to theorising on the modern methods of imparting it, when it is quite possible to acquire a sound knowledge of all subjects now taught, as well as English, if only time were not wasted so criminally, and educational practitioners would lose a little of their conservatism!

British Ferns. By F. G. Heath. x+130 pp. (Pitman.) 2s. net.—The amateur fern lover who wishes to learn how to recognise the British species will be helped by this pocket guide, in which he will find them all figured and described, with particulars of the localities in which they occur. The introduction needs bringing into line with modern botany.

THE ORAL TEACHING OF GERMAN.¹

By ARTHUR W. PEGRUM,
The County School, Gravesend.

IN the November, 1911, issue of THE SCHOOL WORLD appeared a very interesting article upon the oral teaching of Latin. This would, however, have been of far greater use and interest to the present writer if the lesson had been reproduced as actually given. What one most desires to know is what constructions are considered usable at the stage reached, what questions are actually asked, and what difficulties most often recur. These thoughts prompted the present article, in which an attempt has been made to give an account of a lesson as actually given on November 15th last at the Gravesend County School to the third form, numbering twenty-eight scholars.

This class started German on September 12th, and had thus been studying the language a very little over two months. Four lessons a week, each of fifty minutes' duration, are given. The class is mixed, and about equally divided between girls and boys between the ages of fourteen and fifteen years. As a textbook, Dent's well-known little book is used.

REVISION.

Lehrer. Hast du dein deutsches Lesebuch auf dem Pult?

Schüler. Ja.

L. Das ist kein Satz. Gib mir einen Satz.

S. Ich habe meine Lesebuch auf dem Pult.

L. Meine Lesebuch? (Mit Nachdruck auf "meine.")

S. Ich habe mein Lesebuch.

L. Was hast du auf dem Pult?

S. Ich habe mein Heft auf dem Pult.

L. Welches Buch hast du darauf?

S. Mein Lesebuch.

L. Kein Satz!

S. Ich habe mein Lesebuch darauf.

L. Ist es Deutsch oder Englisch?

S. Es ist Deutsch.

L. Wo hast du ein englisches Buch?

S. Ich habe ein englisches Buch in dem Pult.

L. Habe ich ein Lesebuch in der Hand?

S. Nein, Sie haben das Bild.

L. (Eine Zeitung aus der Tasche nehmend.) Und was ist dies?

S. Das ist eine Zeitung.

L. Ist das Wort "Zeitung" männlich?

S. Ja, es ist männlich.

S. Nein, es ist weiblich.

L. Wie wisst ihr das?

S. Es ist *die* Zeitung.

L. Richtig. Das ist also eine Zeitschrift. (Viele erheben die Hände.)

S. Nein, es ist eine Zeitung.

¹ An actual lesson at the Gravesend County School.

L. Also, das ist eine Zeitung. Wann lese ich sie gewöhnlich?

S. Sie lesen die Zeitung am Abend.

S. Zuweilen Sie lesen eine Zeitung in dem Zug.

L. *Zuweilen Sie lesen*, ist das richtig?

S. Zuweilen lesen Sie.

L. Wo lese ich im Sommer eine Zeitung?

S. Sie lesen eine Zeitung in dem Garten.

L. Wo liegt der Garten?

S. Der Garten liegt bei dem Hause.

L. Gebt mir noch eine Antwort.

S. Der Garten liegt zuweilen hinter dem Haus.

S. Zuweilen liegt der Garten vor dem Haus.

L. Der Garten liegt dann entweder vor oder hinter dem Hause. F., hast du einen Garten hinter dem Hause?

F. Ja, ich habe einen.

L. Erzähle mir was davon.

F. Die Blumen wachsen *darin*.

L. Ja, weiter.

F. Ein Baum ist in dem Garten.

L. Was tust du *darin*?

F. Ich spiele *darin*. Im Sommer haben wir den Tee unter dem Baum auf dem Gras. Mein Vater arbeitet zuweilen *darin*.

L. Was spielst du zuweilen in dem Garten?

S. Ich spiele Fussball.

L. Er spielt, dritte Person, erste Person ist?

S. Ich spiele.

L. Womit spielst du Fussball?

S. Ich spiele Fussball mit einer Ball.

L. Korrigiere ihn.

S. Ich spiele Fussball mit einem Ball.

L. Im Sommer, was tust du mit dem Ball auf dem Spielplatz?

S. Ich werfe dem Ball.

S. Ich werfe den Ball.

L. Ja, du wirfst ihn. Wer hat einen Ball?

S. G. hat einen.

L. Was hat G.?

S. Er hat einen Ball.

L. Wo?

S. Er hat einen Ball in der Tasche.

L. Was hast du in der Tasche, G.?

G. Ich habe ein Ball.

L. Korrigiere ihn. Ich habe was? Männlich Akkusativ.

S. Ich habe einen Ball in der Tasche.

L. Was hat er und wo hat er ihn?

S. Er hat einen Ball in der Tasche.

L. Warum sagen wir *in der Tasche*?

S. Tasche ist weiblich Dativ.

L. Wirf mir den Ball zu. (Dies spricht der Lehrer zuerst langsam und wiederholt schneller.) Was tut er?

S. Er wirft den Ball.

L. Ja, er wirft mir den Ball zu. K., schreibe diesen Satz an die Tafel. N., buchstabiere das Wort "wirft."

N. w. i. r. f. t. (Deutsche Buchstaben.)

L. Was tue ich mit dem Ball?

S. Sie fangen den Ball.

L. Fange ich ihn?

S. Nein, Sie werfen es.

L. Es?

S. Ihn.

L. Nochmal!

S. Sie werfen ihn.

L. Wo werfen die Knaben und Mädchen den Ball?

S.S. Auf dem Spielplatz, in der Turnhalle, in dem Garten, auf der Strasse.

L. Knaben und Mädchen spielen also zuweilen in dem Garten; wer arbeitet *darin*?

S. Das Mädchen arbeitet *darin*.

L. Welches Mädchen?

S. Das Mädchen auf dem Bild.

L. Wer arbeitet in eurem Garten?

S. Mein Vater arbeitet in meinem Garten.

L. In *dem* Garten ist besser, oder in *unserem* Garten. (Der Lehrer schreibt "in unserem Garten" an die Tafel.) Arbeitet der Vater *darin*, auf dem Bild?

S. Nein, das Mädchen arbeitet *darin*.

L. Was pflanzt es?

S. Es pflanzt Kartoffeln.

L. Ja; wann pflanzt man Kartoffeln?

S. Im Frühling.

S. Man pflanzt Kartoffeln im Frühling.

L. Nun schreibe die Antworten auf diese Fragen in das Heft.

I. Was wächst in dem Garten?

II. Wer spielt zuweilen *darin*?

III. Wo arbeitet der Vater am Abend?

IV. Was haben wir im Sommer *darin*?

V. Wann pflanzt man Kartoffeln? Nun legt die Federn hin. Was tut ihr?

S. Ich lege die Feder hin.

L. Was tut *ihr*, nicht was tust du?

S. Wir legen die Federn hin.

L. Was lege ich hin?

S. Sie legen das Buch hin.

L. Was liegt auf dem Tisch?

S. Das Buch liegt auf dem Tisch.

NEW WORK.

L. Sieh das Mädchen im Garten an. Ich sehe das Buch an. Was sehe ich jetzt an?

S. Sie sehen ein Bleistift an.

L. Korrigiere.

S. Sie sehen einen Bleistift an.

L. Wie heisst auf Englisch "Sieh das Mädchen im Garten an?"

S. Look at the girl in the garden.

L. Schreibe diesen Satz an die Tafel, M., schnell! Gut. Sieh das Mädchen im Garten an. Was macht es?

S. Sie arbeitet.

L. *Sie* arbeitet?

S. Es arbeitet.

L. Warum *es* arbeitet?

S. Das Wort "Mädchen" ist sächlich.

L. Es arbeitet. Es pflanzt Kartoffeln. Wo ist des Mädchens Vater?

S. Er ist auf dem Feld.

L. Was macht er dort?

S. Er arbeitet.

L. Wo arbeitest du?

S. Ich arbeite in der Schule.
 S. Ich studiere in der Schule.
 L. Siehst du den Vater auf dem Felde?
 S. Ja, ich sehe ihn.
 L. Ist er zu Hause?
 S. Nein, er ist auf dem Feld.
 L. Was hat er?
 S. Er hat zwei Pferde.
 L. Hat er einen Hund auf dem Felde?
 S. Nein, er hat nicht ein Hund.
 S. Nein, er hat nicht einen Hund.
 S. Nein, er hat keinen Hund auf dem Feld, er hat einen Hund zu Hause.
 L. Also der Mann auf dem Feld hat keine Pferde.
 S. Ja, er hat zwei.
 L. Richtig, er hat zwei. Er ist ein Bauer. Er heisst Herr Braun. Er hat zwei Pferde und einen Pflug. Die zwei Pferde ziehen den Pflug. Mit den Pferden und dem Pflug pflügt er das Feld. (Dies sagt der Lehrer dreimal und schreibt "Der Bauer," "der Pflug," "Herr Braun," "ziehen," und "pflügen," an die Tafel.) Wie heisst der Bauer?
 S. Er heisst Herr Braun.
 L. Was ziehen die Pferde?
 S. Sie ziehen den Pflug.
 L. Wie viele Pferde ziehen den Pflug?
 S. Zwei Pferde ziehen das Pflug.
 S. Zwei Pferde ziehen den Pflug.
 L. Was pflügt er?
 S. Er pflügt dem Feld.
 L. Das ist nicht richtig. Wir fragen was pflügt er? Wir brauchen den Akkusativ und das Wort "Feld" ist sächlich.
 S. Er pflügt das Feld.
 L. Wann pflügt er es?
 S. Im Frühling.
 L. Pflügt ein Bauer das Feld jetzt?
 S. Ja, es ist Herbst.
 S. Ja, er pflügt das Feld im Herbst.
 L. Er lebt in einem Dorf, und hat sein Haus dort. Morgens geht er auf das Feld und abends kommt er heim. Er ist sehr fleiszig und arbeitet von früh bis spät.

Then followed these questions :

Wo lebt er? Wer lebt in einem Dorf? Lebt einer von euch in einem Dorf? Wie heisst das Dorf? Ist es weit von der Schule? Ist diese Schule in einem Dorf? Wohin geht der Bauer morgens? Wann kommt er heim? Wie ist der Bauer? Wann ist man fleiszig? Seid ihr fleiszig, wenn ihr Deutsch studiert? Wie ist man, wenn man nicht fleiszig ist?

After these questions the blackboard was put up before the class containing the summary—in continuous prose form—of the new work taken in the lesson. Then the class was told :

"Die deutsche Aufgabe für heute Abend ist: Schreibe fünf Sätze über den Bauer." Was ist die Überschrift?

L. Nun macht die Bücher zu. Jetzt sind wir fertig. Danke.

Even in the above account quite a number of

questions mainly repetitionary in character have been omitted, the reason being obvious. Great stress is laid upon repetition. The first quarter of an hour *at least* is given over to recapitulation, and the vocabulary prepared for the new work of the lesson. With so much repetition, it may be asked, how is interest to be maintained, for the maintenance of interest in the teaching of a foreign language is most essential. This has been achieved by the following devices :

(i) *Rapid Questioning*.—There must be no long pauses. Question must follow question in rapid succession. Occasionally an emphatic delivery of a sentence followed by a short pause is very useful as a variation, and as a means of impression.

(ii) *Dramatic Teaching*.—The intonation of the voice should be dramatic to some extent. Foreign gesture should be adopted, and if thereby a laugh is raised, so much the better. Raise a laugh whenever possible, and so brighten the class-room. The one thing the teacher must guard against is dullness in himself. If he is bright, the class is bound to be infected with that brightness.

(iii) *The Use of Pictures*.—If you work upon Dent's system, do not be content with the four pictures of the seasons. If you cannot draw your own, get the art master to pick out from the main picture what you want to use in your lesson, and turn out a sketch of it. It does not matter how rough and ready the sketch; it will attract attention.

(iv) *The Use of Play*.—Within bounds, play in the class-room. Throw a ball, and catch it, and allow members of the class—under your direction, of course, given in German—to do so; sit in front of an imaginary fire when talking about it; play "buzz" for impressing the numerals; and so on.

Every member of the class must answer, and only on very rare occasions is an answer interrupted. If boys—and girls—know that they will be discovered if they shirk, they will work.

The scholars themselves are brimming over to use their acquired language, and often give surprisingly long answers. Naturally some do very much better than others, as may be seen from a glance at the accompanying efforts.

The first four papers have been selected from those containing the answers to the revision questions. Each question was read out twice, and then the answer had to be written. This method obviates the necessity for dictation exercises. Three members of the class wrote answers to the questions without a mistake, and five others made but one. Out of a maximum of ten, the lowest mark given was five, and this paper is reproduced below as it was written.

The original composition—the writing of five sentences about a farmer—was set as home-work, and some of the efforts are again given, just as they were written by the pupils. No one succeeded in writing the five sentences without a mistake. Out of a maximum of ten marks, four obtained 9; eight obtained 8; two obtained 7; five obtained 6; one obtained 5; three obtained 4; two obtained 3; one obtained 2.

The amount of work set as home-work may appear small, but in the writer's opinion it is far better to set a little which will give pleasure in the doing, rather than a large amount which will only tend to bore the child, and create a distaste for the subject.

I.

I. Die Blumen wachsen in dem Garten.

II. Der Knabe und das Mädchen spielen zuweilen darin.

III. Er arbeitet in dem Garten zuweilen am Abend.

IV. Wir haben den Thee in dem Garten zuweilen im Sommer.

V. Man pflanzt Kartoffeln im Frühling.

II.

1. Die Blumen wachsen in dem Garten.

2. Die Knaben spielen zuweilen darin.

3. Der Vater arbeitet in dem Garten zuweilen am Abend.

4. Essen-wir den Thee in dem Garten im Sommer zuweilen.

5. Wir pflanzen Kartoffeln im Frühling.

Wir essen den Thee in dem Garten im Sommer zuweilen.

III.

1. Der Baum wächst in der Garten.

2. Der Knabe spielt zuweilen derin.

3. Der Vater arbeitet zuweilen auf das Feld.

4. Wir haben der Thee im Sommer in dem Garten.

5. Mann pflanz Kartoffeln im Sommer.

IV.

I. Der Baum wachsen in dem Garten.

II. Das Mädchen spielt zuweilen der in.

III. Der Vater arbeitet zuweilen in dem Feld.

IV. Wir haben Thee in dem Garten in Sommer.

V. Mann phlfantz.

I.

Der Bauer.

1. Der Bauer wohnt gewöhnlich in einem Dorf.
2. Er abeitet auf dem Feld, mit zwei Pferde.
3. Die Pferde ziehen den Pflug.
4. Der Bauer hat eine Frau; sie arbeitet in dem Hause.
5. Er hat, auch, die Kinder; das Mädchen pflanzt Kartoffeln; ein Knabe und drei Mädchen spielen auf der Strasse.

II.

1. Herr Braun ist ein Bauer.
2. Er arbeitet auf dem Feld.
3. Er hat einen Pflug und zwei Pferde.
4. Er geht nach dem Feld und er kommt nach Hause am Abend.
5. Er wohnt in einem Dorf, mit Frau Braun und seinen kindern.

III.

Der Bauer ist ein Mann, und er arbeitet auf dem Felde. Er hat einen Pflug, und Pferde ziehen den Pflug. Im Frühling er pflanzt Kartoffeln. Er hat zuweilen Pferde, Hunde, Hühner, Enten Entchen. Er hat auch Felder, Wiesen, Bäume und pflanzen, und zuweilen ein Garten bei dem Hause.

IV.

- I. Herr Karl Braun ist ein Bauer.
- II. Am Morgen der Bauer arbeitet auf dem Feld.
- III. Er hat zwei Pferde welcher ziehen den Pflug.
- IV. Am Abend er esst Thee.
- V. Nach Thee zuweilen liest er ein Buch.

V.

Der Bauer hast die Enten.
Hinter der Hause ist ein Fluss.
Die Entes schwimmt in ein Fluss.
Neben der Hause ist ein Garten.
Der Bauer arbeitet in dem Felde.

PERSONAL PARAGRAPHS.

MISS ROSA MORRISON, whose career was noticed in these paragraphs last month, has left over thirty thousand pounds; two thousand is for a scholarship in German and two thousand for a scholarship in English, both for women and tenable at University College; about two thousand five hundred is bequeathed to different institutions for women, and the residue of her property is left equally between the New Hospital for Women, College Hall London Residence for Women Students, and University College, for use in connection with the Faculty of Arts.

* * *

So many well-known educationists appeared at the meeting of secondary-school teachers at the University of London on March 23rd that the meeting overshadows all else this month. The Dean of Lincoln, Dr. Fry, was once more to the fore. For a schoolmaster he once led a fighting life, and many are the stories of his early years as headmaster of Berkhamsted, where he went in 1887 after being headmaster of Oundle for about a year. Opposition to improvements suggested by him was soon overcome, and latterly his was one of the controlling influences in the town of Berkhamsted. Throughout the movement for the present Registration Council, as well as that for its predecessor, Dr. Fry has taken a keen interest, and has always been ready to lend a helping hand; this he also did to secure the passing of the Endowed Schools Act.

* * *

MISS LEES, who gave some details of the scheme drafted by the Joint Pensions Com-

mittee, was for two years president of the Assistant-mistresses' Association, in which office she has now been succeeded by Miss Drummond. Miss Lees has for some time ably represented her association on the Federal Council, on the Federated Associations of London Non-primary Teachers, and on the various committees that have sat during the last two or more years working at a pension scheme for teachers in secondary schools.

* * *

DR. McCLURE, one of the guiding geniuses of the Association of Headmasters, this year completes his twenty-first year as headmaster of Mill Hill School; he holds degrees in mathematics, music, and law; he is a barrister, Inner Temple. He was a Cambridge Extension Lecturer, professor of astronomy at Queen's College, London, and was for a short time a member of the Senate of London University. But he is perhaps better known as one of the secretaries of the Headmasters' Association, in which capacity he shows his legal acumen and exercises his powers as a politician. He represents the Headmasters' Association on a very large number of committees, and teachers, as well as pupils, owe much to "the bird," as the latter affectionately call him.

* * *

MR. WINBOLT, the chairman of the Assistant-masters' Association, has been a master at Christ's Hospital since 1892, and a house master since 1902. He is a member of the West Sussex Advisory Committee, of the Federal Council, and of the Classical Association. He has edited a number of school books on English and classics, and is a constant contributor to several well-known papers. His work for the Assistant-masters' Association has extended over many years, and includes that of the honorary secretary, of the editor of the *A.M.A.*, and now that of chairman.

* * *

MR. R. F. CHOLMELEY, who spoke to the resolution on the freedom of the schools, succeeded Mr. Easterbrook as headmaster of Owen's School, Islington, after some twenty-one years as a master at St. Paul's, during nearly twenty of which he was a house-master. He was an energetic member of the Assistant-masters' Association, and one of the founders of the West and North-West London branch; he has recently returned to the Federal Council as its honorary secretary, and he is now the chairman of the London branch of the Headmasters' Association. His school work and his other work, literary and other, for education do not by any means exhaust

his energy; he finds time to be a keen political pamphleteer.

* * *

MRS. BRYANT, the most prominent of the lady speakers, is the headmistress of the North London Collegiate School for Girls. She is, I believe, the only woman who has held office as Vice-Chairman of Convocation at the University of London. She was one of the organisers of the First International Moral Education Congress held in London in 1908, has written on the subject, and is now on the English committee for the second Congress, to be held this year at The Hague.

* * *

AMONG those on the platform who did not speak was the Rev. G. C. Bell. He took a First in mathematics and a First in classics back in the 'fifties; after eight years as lecturer and tutor at his old college, Worcester, he was for three years second-master at Dulwich, for eight years headmaster of Christ's Hospital, and for twenty-seven years Master of Marlborough. He was one of the founders of the Federal Council and the chairman of the Teachers' Registration Council, that council whose register is now obsolete.

* * *

MR. KAHN is to be succeeded at the Holloway County School by the head of the commercial department at the Hackney Downs School. Mr. Hurlstone-Jones—better known to colleagues and friends alike as Mr. F. R. Jones until he recently took the prefix—holds degrees from Cambridge and Manchester; he was for a short time a master at Elstree and at King's College School, Wimbledon, whence he went to Hackney Downs to succeed Mr. E. C. Chappell, the organiser of the commercial department.

* * *

AMONG the survivors of the *Titanic* disaster is Mr. Lawrence Beesley, who went to Dulwich College as a science master in 1904, after two years at Wirksworth Grammar School. He was a scholar of Derby School, and scholar and prizeman of Caius College, Cambridge. Mr. Beesley has already put on record in a clear and concise letter to *The Times* the lesson of the terrible disaster. One of the victims of the collision was the Rev. E. C. Carter, formerly a master at the Godolphin School, Hammersmith; since 1898 he has been Vicar of St. Jude, Commercial Street, London. E. Mrs. Carter went down with him; she was the daughter of Tom Hughes. Mr. and Mrs. Carter can ill be spared by the religious and social life of Whitechapel.

ONLOOKER.

THE QUESTION OF SEQUENCE IN GEOMETRY.

IN a letter published in our April issue, Prof. G. H. Bryan raised the important question of the order of propositions in elementary geometry, and suggested that Euclid's sequence might be restored with advantage, certain propositions being omitted. Incoherence and lack of precision in theoretical geometry have often been ascribed by examiners and teachers to the absence of a standardised sequence of propositions, and the cry of "back to Euclid" has been heard on more than one occasion. It seemed to us, therefore, that a useful purpose would be served by inviting representatives of the teaching and examining sides of school geometry to express their views upon the subject of Prof. Bryan's letter. In reply to our invitation, we have been favoured with a number of important communications, some of which are subjoined. While we do not express any opinion now upon the desirability of adopting a recognised sequence or otherwise, our correspondence shows that dissatisfaction exists with the present condition of things, and that the subject merits the serious attention of a strong committee or other authority capable of exerting influence upon the teaching of elementary geometry.

A national committee of fifteen was some two years ago appointed, under the joint auspices of the U.S. National Education Association and the American Federation of Teachers of the Mathematical and Natural Sciences, to deal with the question of a geometry syllabus. It was composed of eight representatives of secondary schools and seven of the universities. The names of the former will be unknown to most of our readers. That one has been appointed professor of mathematics at Columbia University, and another assistant professor of the same subject at the University of Wisconsin since the committee was constituted, is sufficient test of the calibre of their colleagues. The names of Bouton, Cajori, Hawkes, Hedrick, Rietz, David Eugene Smith, and H. E. Slaughter will show that the universities were presented on the committee by notable persons in the American mathematical world.

The provisional report of the committee has just come to hand. It fills seventy-eight pages, and we may add that gratis copies will be supplied to teachers and to others interested in the subject upon application to the Commissioner of Education, Department of the Interior, Washington, D.C. We have no time before going to press to make more than a passing reference to the scope of the report. The historical introduction covers twenty-four pages. Under the head of logical considerations we have sixteen pages devoted to axioms, definitions, informal proofs, limits and incommensurables, time and place in the curriculum, purpose in the study of geometry, and points on solid geometry. A few remarks on special courses are followed by fifteen pages on exercises and problems; distribution, grading, and nature; sources of problems; problems involving loci; and algebraic methods in geometry. The rest of the document deals with the proposed syllabus—geometrical theorems, both plane and solid.

A cursory perusal has been productive of but one reference to the vexed question of "sequence," to which Prof. Bryan directed attention in his letter in our April number. We venture to print it here, as it is interesting to know the point of view arrived at by our colleagues across the herring-pond after a deliberation extending over three years. It would seem that teachers are left a free hand as to logical order. The passage occurs on p. 59, in the preface to a list of theorems.

"Although there is some indication of a possible order in the lists, there is no intention of specifying any definite order. It would be impossible to carry out as a whole precisely the order stated below. In several connections the words 'corollary to' or 'synonymous to' may seem to imply an order. These phrases are used only to indicate the reason for putting the theorem quoted in the group in which it appears. Thus in group ii. on p. 71, it would not be clear in every case that each theorem is a corollary of plane geometry without such a suggestion of possible derivation. It should be noticed that some logical arrangements would necessitate the insertion of the theorems omitted in this list. Such an insertion is entirely in the spirit of this report, as is also any conceivable change in the order, except where specified explicitly in the report."

S. BARNARD, M.A.

Assistant-master, Rugby School.

I entirely agree with Prof. Bryan's remarks as to the desirability of a return to Euclid's sequence. The importance of having a standard sequence can hardly be exaggerated; and after ten years' experience in teaching under the new system I believe that Euclid's sequence is preferable to any other.

Of course, it would not be advisable to include all of Euclid's propositions, and certain propositions should be included which do not occur in Euclid.

Further, it might be desirable to introduce a certain amount of solid geometry at an earlier stage than that represented by Euc. XI.

Most of the "school geometries" follow more or less closely the Report of the Committee of the Mathematical Association on the Teaching of Geometry (1902). At least two suggestions in this report have not proved to be practically useful. One of these is that the formal course should be divided into two parallel courses of (1) theorems and (2) constructions. The other is the suggestion that frequent use should be made of superposition and folding in the proofs of theorems.

The order suggested by the Cambridge Syndicate requires that Euc. I. 27 should be proved by rotation. Most teachers will agree that no proof of this kind exists which the average student can reproduce.

R. WYKE BAYLISS, M.A.

Mathematical Master, Whitgift Grammar School.

Most teachers will agree with the majority of the assertions made by Prof. Bryan, such as (1) that the difficulty in obtaining uniformity is that every teacher has his own methods; (2) that no one would look at a new book based on Euclid's sequence ten years ago;

(3) that "the question of order of sequence is a very different thing from the question as to *how* geometry is taught"; and they will also approve the just statements he makes with regard to old methods of teaching Euclid.

When, however, we come to consider his remedy for the admitted disorder, most of us will be surprised, and will, I hope, resist the suggestion with all our powers.

A very common misconception, found especially amongst those who have had no experience of teaching the new geometry, but not unknown even in the ranks of mathematical masters, is the fallacious idea that order necessarily implies sequence. Prof. Bryan is, of course, too great a mathematician to fall into this error himself; yet his letter seems likely to entrap the unwary reader into this very pitfall.

Even if some sequence were necessary I should be ready to fight most strenuously against the restoration of Euclid's sequence without Euclid's methods. This would be far worse than the restoration of Grecian architecture without Grecian columns!

Euclid wrote a magnificent and hitherto unapproachable treatise. When we, or most of us, by clear thinking have got rid of this bogey of sequence, then it will be open to any good mathematical teacher to write a treatise equally fine and perhaps also unsurpassable, which shall be better suited to the requirements of the modern curriculum. Such a treatise, however, could have no more resemblance to Euclid's than Westminster Abbey has to the Parthenon.

Within the limits of a letter it is not possible to explain fully what kind of order is desirable. *Arbitrary sequence* should most emphatically be avoided; but *natural sequence* is, of course, quite unavoidable in any logical treatment. On a foundation of natural groups of theorems, and logical sequence of such groups, a perfectly consistent scheme can be built. The development of such a scheme can be greatly assisted by the pronouncement of some recognised authority. We have such an authority in the delegates who drew up the Oxford and Cambridge Syllabus for the Senior Local examinations.

No one, least of all, probably, the delegates themselves, would regard this syllabus as perfect. But it is far more practical, consistent, terse, and logical than any other scheme which has been put forward. Those persons, on the one hand, who are wedded to the idea of sequence can, of course, take the more or less arbitrary sequence of this syllabus as their guide, although this will indeed be difficult if the delegates keep on making small changes in the apparent sequence as they did this year. Those, on the other hand, who have fully imbibed the spirit of modern geometry (without being unduly intoxicated thereby) will regard the syllabus as valuable chiefly because the grouping and the wording of the theorems afford some indications of the best scheme to adopt in order to satisfy those who have a right to be regarded as authorities.

I have already exceeded the ordinary limits of a letter: but to do justice to this subject would require an article. I will only add that when Prof. Bryan

and myself were at Cambridge together more than twenty years ago, I never ventured, nor would I now venture, to dispute with him concerning the higher mathematics; but with regard to the elements of geometry, after having given this portion of mathematics special consideration during nearly a quarter of a century, I am quite prepared to maintain the following propositions:

- (1) We need a living authority, not a dead book.
- (2) It is of the first and greatest importance to settle the definitions and axioms authoritatively.
- (3) When these are settled it is easy to arrange the theorems logically in natural groups.
- (4) This grouping forms the true foundation of geometrical teaching.
- (5) The foundation being laid, the theorems will *arrange themselves* in a natural and orderly sequence.
- (6) The same order (but not necessarily the same sequence) will be that best adapted for the preliminary practical exercises.
- (7) A bad sequence is worse than no order at all; it stereotypes bad definitions, weak methods, and erroneous ideas.
- (8) The abolition of Euclid has not made bad geometrical teaching impossible; no negation can do this.
- (9) The restoration of Euclid's sequence would not only be detestable in itself, but would revive many of the worst abuses.
- (10) The revolution of ten years ago has *not* yet accomplished its true object—that of placing our geometrical knowledge on a really scientific foundation.

J. B. DALE, M.A.

Assistant Professor of Mathematics, King's College,
London.

I am glad that Prof. Bryan has directed attention to the question of sequence in geometry, for the "away from Euclid" movement, whatever its merits may be, has led to a chaotic position of affairs so far as this question is concerned.

I think it will be granted that if deductive geometry is to be taught at all, some definite order of development of the propositions from the fundamental assumptions must be followed. Strictly speaking, these fundamental assumptions ought to be independent; but for a school course it is perhaps inadvisable to insist upon this, although assumptions, like hypotheses, ought not to be unnecessarily multiplied.

The selection of fundamental assumptions is to a great extent arbitrary, consistency being the only necessary condition which they must satisfy, and hence it is possible for writers to take different sets, fundamental assumptions with some becoming derived propositions with others. It is this fact which has led to the variety of order in the modern school geometries. Theoretically, there can be no objection to these differences, but practically they are, if carried to excess, objectionable.

I have, for example, seen papers in which boys, asked to prove that a straight line drawn through the middle point of one side of a triangle parallel to the base bisected the remaining side, wrote: "By Prop. x in —'s geometry, a straight line drawn

parallel to one side of a triangle divides the other sides proportionally, hence, &c." I had not a copy of the geometry named, but I consulted all the other modern geometries available, and none of them sanctioned such a complete inversion of the usual sequence, and I doubt whether the geometry named did so either.

Under the Euclidean *régime*, the proving of a proposition by its converse was a method often adopted to conceal ignorance; it was, of course, not accepted, but now it can be done with impunity, because X.'s or Y.'s school geometry can always be pointed to for justification.

After fifteen years' experience of the work done by candidates in Matriculation, School Leaving, Board of Education, and Civil Service examinations, I have come to the conclusion that while the modern methods of teaching geometry are of value in strengthening the geometrical imagination in children in whom it is only feebly developed, they have not improved the work of the better candidates.

Personally, I have never seen any reason to discard Euclid, and I should not care to substitute any of the modern books for it in my classes. The majority of these books are lax in their definitions, and it is often difficult to discover what their fundamental assumptions are. I do not mean to imply that Euclid is free from defects, but there was never any need to treat it as a verbally inspired document from which no deviation was permissible; and treated in a reasonable manner it is as satisfactory a textbook as, and carries greater authority than, any of its rivals. On all grounds I would support Prof. Bryan's plea for a return to the Euclidean sequence.

W. D. EGGAR, M.A.

Assistant-master, Eton College.

Prof. Bryan has done teachers of physics a service in raising this question. My own experience inclines me to the opinion that under the new conditions of geometrical teaching the boys who come to me possess a better knowledge of geometrical truths than they used to do under the old *régime*. It is not my business to find out if they can prove those truths; and, to be candid, it does not really matter to me whether they can or not. I should be quite content for them to possess an intelligent knowledge of the facts, along with some ability to make deductions from them. However, I do want sometimes to be able to allude briefly to one or other of these facts. I have learnt to speak of "Euc. I. 47" as "Pythagoras." But I have no pet names for Euc. III. 22 or III. 35 or VI. 19. The friend beneath whose hospitable roof I write this has recently brought out a new edition of his geometry, and if I had ever succeeded in learning the numbers of the propositions in the old edition, I should now have to begin over again. I cannot remember the number assigned to any proposition in my own book. There once seemed a prospect of the order of the Cambridge Schedule being universally adopted; but the Circular of the Board of Education has brought up a crop of new geometries and new editions, and once more "the old order changeth, yielding place to new."

I think myself that Euclid should still be *the* book of reference in the mathematical scholar's library, and that teachers of geometry should be familiar enough with him to be able to employ his numbering. If I may be allowed to compare small things with great, I would liken the position of Euclid to that of the Authorised Version in the scientific study of the Synoptists. Imagine them sorted out for the use of schools into Q, Mark, Matthew, Luke; not only those who wish to stand upon the ancient paths, but the most ardent of modernists, would employ for purposes of reference the old "chapter and verse."

R. C. FAWDRY, M.A., B.Sc.

Head of the Military Side, Clifton College.

Prof. Bryan's plea for the retention of Euclid's sequence in geometrical teaching is singularly unconvincing owing to the fact that he produces but one argument in its favour, namely, the desire for uniformity, and yet omits to state on what grounds he considers uniformity to be desirable. Surely the adoption of different sequences has been due to the fact that in many cases it was the order in which the propositions were taken that caused the difficulty.

Perhaps, however, Prof. Bryan is an examiner. In that case he is not likely to win much sympathy from the teacher—the worm is at length beginning to turn.

The question raised is not merely a matter of detail, it involves an investigation into the educational ideals which we have in view in teaching geometry in schools.

Dr. L. N. G. FILON, F.R.S.

Professor-Elect of Applied Mathematics and Mechanics, University College, London.

With reference to Prof. Bryan's letter on the question of sequence in geometry in the April issue of *THE SCHOOL WORLD*, all examiners will sympathise with Prof. Bryan's desire for some standard sequence to be adopted. There is no doubt that such a step would do much to remove the present chaos. Even if it did no more than dam the flood of school geometries with which we are at present inundated, there would be much to be thankful for.

Unfortunately, the moment one tries to set up one particular sequence as the standard serious difficulties arise. Prof. Bryan proposes to return to Euclid's sequence. But it may well be doubted whether Euclid's sequence is really the best, and whether it is in any way adapted to the modern method of teaching geometry. To take a definite example, modern teaching is largely based upon measurement. What is really wanted is some intelligible theory of measurement which can be given at an early stage: at present the only theory of measurement of physical quantities is implied in the fifth book of Euclid, which, I believe, scarcely any boys, and probably very few teachers, really understand.

Again, the theory of similar figures is wanted very early for the proper intelligence of maps and of all reproductions of diagrams: and there is really no serious objection to connecting closely propositions concerning similarity of triangles with the corresponding propositions concerning their congruence.

If this were done, the proofs of some properties of the circle could be very much simplified. For example, Euclid III. 35 and 36 follow quite readily from the fact that if OPQ , $OP'Q'$ are two chords of a circle, the triangles OPP' , $OQ'Q$ are similar.

Many other instances can be given where an inversion of Euclid's sequence will lead to simplification. Thus II. 14, to describe a square equal in area to a given rectangle, follows directly as a rider from III. 35, and is most easily remembered in connection with it. A number of other examples will readily occur to most teachers.

Personally, I feel doubtful whether it is practicable at the present time to re-establish a standard sequence. However convenient it might be in many ways, it is almost bound to lead to stereotyped teaching and to a certain deadening of thought. But if we are to have it, let a committee including the most expert mathematical teachers available be entrusted with the task of drafting such a sequence—subject to revision at certain (not too small) intervals. Such a committee should contain school and university teachers in about equal numbers, for it must not be forgotten that the university teacher has a very direct interest in school teaching; any mistakes in the latter affect him very seriously, as nothing is more difficult than to get a student to unlearn what he has been taught at school.

C. GODFREY, M.V.O., M.A.

Headmaster, Royal Naval College, Osborne.

There must, of course, be an accepted sequence in each school; Prof. Bryan is suggesting that all schools should adopt the same sequence, and that Euclid's. Schools will never do this unless they are compelled to, and presumably the idea is that examining bodies should unite to apply this compulsion.

What is to be gained by compulsory uniformity? It is not complained that the teaching of geometry in schools is weak on the logical side: there are any number of possible logical sequences; this is not what the suggested return to Euclid is to remedy. The objections to present-day freedom are twofold: (1) it is inconvenient to examiners; (2) it is inconvenient to masters who have to teach pupils coming from a variety of schools.

No doubt examiners are inconvenienced. If their work is made considerably harder by this inconvenience they should be paid more. But if the proposal involves worse teaching in schools, as I shall try to show, the convenience of examiners should not be allowed to count heavily. And examiners are only handicapped when they seek to set propositions. Why should propositions be set? Anyone can cram a proposition; propositions in examinations simply test whether a boy has crammed them or no. In so far as the lack of uniform sequence restrains examiners from setting propositions, it makes for good teaching.

The real difficulty is connected with the passage of boys from one school to another. Boys should not learn propositions before they are twelve; the difficulty is therefore confined to those schools the age of entry to which is above twelve. Boys enter many of the large day schools before twelve, and will learn all their geometry from one manual. Among the schools that

enter boys of thirteen and upwards are the public schools. Most of their recruits have begun formal geometry, and if any schools feel the difficulty referred to, the public schools may be expected to. No doubt many of them do, but I am sure that they need not. When I taught at Winchester there was great diversity in the books used by preparatory schools; but it was not a serious inconvenience. Two hundred boys enter Osborne each year at the age of thirteen; but there is no difficulty in teaching them geometry. How has the difficulty been avoided?

The way out of the difficulty has been indicated very clearly by the Board of Education (Circular 711, on the Teaching of Geometry and Graphical Algebra; March, 1909). If Prof. Bryan is not acquainted with this circular, I am sure that he would find it interesting. He would probably agree that the adoption of the plan suggested will knock the bottom out of the agitation for a fixed sequence. To a great extent it has already done so. This scheme is being used very widely, and has been blessed by various educational bodies (Headmasters' Conference—Report of Curriculum Committee; Association of Preparatory Schoolmasters—Report on Mathematical Teaching).

The idea of this scheme is as follows. Variations of sequence are found mainly in the earlier propositions of Book I. The Board of Education proposes to cut the knot by treating these propositions informally, establishing them independently by appeal to intuition or experiment. They thus become independent of sequence, and essentially postulates. In the chief subsequent propositions of plane geometry there is little difference between the sequences used in various standard books.

Public schools and secondary schools that are content to follow the scheme propounded so influentially will find that the sequence difficulty has vanished. As a matter of fact, this is what schools are doing, and I cannot but regret that Prof. Bryan has lent the weight of his name to a reactionary policy just at the time when the main argument for such a desperate expedient is on the point of evaporating. I take it that he is not concerned to press one sequence in preference to another; a mathematician of his eminence cannot be satisfied with the Euclidean sequence: what he wants to do is to solve a practical difficulty of school organisation. If he can convince himself that the alternative solution I have pointed out is as sound as I think it, may we hope that he will support a policy which is already on the way to solve the problem?

The objections to a fixed and compulsory sequence—Euclid's or another—are grave. Compulsion in education is bad. Why should I be compelled to teach geometry in a way that I condemn? How can there be progress without experiment, and how can a man experiment in a strait-waistcoat? Ten years is not a long period in the evolution of education. There have been ten years of freedom, but the best way to teach geometry has not been evolved as yet. Which should be taken first, Book II. or Book III.? Is there not much to be said for teaching the theory of similar figures quite early in connection with scale drawing? Is it not possible to teach plane and solid

geometry concurrently, a method that is being tried in France with increasing success? Unless all the best teachers are free to try these and other experiments, we shall not discover the best way. Freedom cannot be had for nothing; we must pay the price—part of it to examiners if necessary—but freedom is better than cheap examining.

FRANK L. GRANT, M.A.

Assistant-master, University College School.

There are very few teachers of elementary mathematics who would not welcome a standardised sequence of propositions in geometry, but I doubt very much if it is possible to restore Euclid's sequence. In addition to the fact that many propositions have to be omitted, the introduction of geometrical constructions, which were not used by Euclid, necessitates in several cases a rearrangement of Euclid's propositions. Even then, the question as to which is the best point of first attack has to be decided.

The great difficulty seems to be the want of an authority which would be accepted not only by the teachers themselves but by the various examining bodies. As there is no such authority in this country it looks as if there was nothing to be done but to wait until the general opinion was in favour of a particular sequence. As the persons who would receive most benefit from a standardised sequence are the examiners, it might be advisable for the Board of Education to submit a sequence to the universities and Mathematical Association in the first place. No sequence will meet the views of all concerned, but it is very probable that a sequence supported by a large majority would soon become general. Writers of books on geometry would soon follow the sequence and aid the adoption.

Failing the Board of Education, the matter might be considered by the Mathematical Association.

Dr. E. W. HOBSON, F.R.S.

Sadlerian Professor of Pure Mathematics, University of Cambridge.

Prof. Bryan, in advocating the adoption of a fixed sequence in the teaching of geometry in schools, has omitted to give any definite reason in favour of his proposal. He contents himself with an implied assertion in the form of the question whether it is "not the fact that even a bad sequence, if recognised as the standard, would be better than no recognised sequence at all." The main, if not the only, reason that can be urged in favour of a fixed sequence for all schools is the undoubted fact that such standardisation would be a great convenience in relation to examinations. The main reason against such standardisation has been cogently stated by Prof. Bryan himself, who writes: "The difficulty in obtaining uniformity is that every teacher probably has his own methods, which in his hands succeed better than any other methods, but which would not be so successful in the hands of another teacher."

The question at issue would appear to resolve itself

into one as to the relative importance of the examination aspect and the teaching aspect of the subject. To my mind the freedom of the teacher is of inestimably greater importance than is the convenience of the examiner.

It is strange indeed that Prof. Bryan appears to be ready to compel teachers to adopt methods which, as he himself says, will entail a diminution in the success of their teaching. The exigencies of the examination syllabus have inflicted so much evil upon our teachers that they might well be spared this new proposal to take away their recently won freedom. By forcing upon schools a rigid sequence of propositions in the teaching of elementary geometry, the efficiency of the teaching would be most seriously impaired, and this for the sake only of a scheme of examinations which ought to be entirely subsidiary to the teaching, and not to dominate it.

A CLEMENT JONES, M.A., Ph.D.,

Senior Mathematical Master, Bradford Grammar School.

So far back as June, 1905, in an article entitled "After Euclid?" which by the courtesy of the Editors was printed in *THE SCHOOL WORLD*, I wrote: "The need is not for an authoritative text-book, but for an authoritative sequence of propositions. Given a really authoritative sequence of important propositions, generally adopted, text-book or individually written courses, based on it, would be practical, and might well be an improvement in many respects on Euclid. Without such a recognised sequence it seems to me that there can be little co-ordination of geometrical teaching."

After seven more years' experience I am more than ever convinced that the two things necessary to the successful teaching of geometry—not in a single isolated school, but in the schools of the country as a whole—are:

- (i) A statement of the minimum of important propositions which should constitute a course of geometry and *which may be quoted*.
- (ii) A definite statement of the sequence in which they must be proved.

In Circular 711, the Board of Education authorities stated that the criterion of successful teaching in geometry is whether or no a pupil can do riders: in that circular it stated, "the student must be capable of doing riders."

The proving of propositions becomes a farce unless we know definitely what properties we may assume to have been previously proved—in other words, unless we are agreed on the sequence.

The solving of riders becomes a farce unless we definitely understand what properties we may assume proved—in other words, unless we are agreed as to what constitutes a rider.

Anyone who examines boys from a variety of schools in geometry knows how easy it is to set questions which are trivial when based on one book, and quite serious efforts when based on another.

It follows that I welcome Prof. Bryan's eminently practical letter in your last issue, and I may add that

this feeling is shared by the mathematical staff at Bradford, all of whom are teachers of long and wide experience.

The order in which Euclid presents his propositions is, unfortunately, not ideal; propositions are not grouped, many are isolated. In support of Prof. Bryan's suggestion, however, it may be noted that considerable alterations can be made in Euclid's order without violating his sequence of proof. Still, a new and carefully constructed sequence would be, without doubt, preferable.

The Board of Education is evidently anxious to do something for the teaching of mathematics in secondary schools, and to spend some money on this object. It has, for instance, brought out a series of pamphlets dealing with the various branches of elementary mathematics. This effort has, I think, been rather abortive; the pamphlets are, unfortunately, the work of selected writers, and represent merely individual opinions. How much better it would be if the Board of Education authorities would concentrate their attention on this one thing needful, to which Prof. Bryan has once more directed attention. I suggest that the Board of Education should create a really strong committee consisting of:

(a) A number of our most eminent mathematicians.

(b) Schoolmasters of large experience representing the chief types of secondary schools.

I have amplified (b) for two reasons:

(i) Masters in the old-fashioned public boarding schools teach under special conditions; the advice given by committees of such teachers is often quite useless to men teaching under less favourable conditions.

(ii) A large school like the Bradford Grammar School, where we are entitled to say that for several years the mathematical teaching has been successful, has not once been represented on the various committees dealing with mathematical teaching; the school, nevertheless, is typical of a much larger number of schools than some which have been represented by two, or even three, men.

A committee thus formed by the Board of Education, and not by any one association or clique of men, could settle with authority (i) the essential propositions, and (ii) the sequence of their proofs. This would provide a sound foundation for all geometrical teaching; it would in no way interfere with individual methods of teaching, or with those improvements which we readily grant are due to the Radicals among teachers of geometry.

There is no question of returning to the methods of our childhood, such as learning Euclid by heart; we need not give up any of the experimental and practical work which is useful because every boy can do some of it, even the duffer who cannot, and never will, solve a rider. All the advantages of the reform can be retained; at the same time we can be logical, definite, and unanimous.

If this suggestion is not practical, if no sufficiently accepted authority, such as the Board of Education, will undertake this work, then I agree with Prof. Bryan that Euclid's sequence is better than none.

D. B. MAIR, M.A.

Director of Examinations, Civil Service Commission.

In the April number of THE SCHOOL WORLD Prof. Bryan advocates the restoration of a standard sequence in synthetic (or Euclidean) geometry. The value of such a standard sequence is not clear. There is no standard sequence in any other branch of mathematics, e.g., algebra, trigonometry, or even Cartesian geometry. In these branches the teacher is free to choose his own order of development, limited as to sequence only by the nature of his subject. I am unaware of any inherent difference between synthetic geometry and other branches of mathematics which requires a standard sequence to be set up for that one branch more than for others. Is not the explanation of the present demand, now voiced by Prof. Bryan, simply that "we have always been used to a sequence"?

In my opinion any artificial restriction is bad. Most of us remember the time when the late Prof. Chrystal introduced the "graph," and how smoothly and quickly the graph fitted itself into the algebra course. On the other hand, think of the prolonged struggle that has been necessary to free us from "getting up" Euclid's most trifling proposition and to gain admission to the school for ruler and compasses. The difference between these cases is simply that we were free to treat algebra on its merits, while geometry was subject to artificial restrictions.

Freedom of sequence is the very citadel. Given that, everything is free; with a fixed sequence everything is fixed. The fixity is not clear to us just now because a restored standard sequence could only be one which for the moment met with general approval. But views change, and a generation or a century hence the fixity would be all too clear. Our freedom is too recent to make possible any forecast of the future of synthetic geometry. Let us keep that freedom and allow the development of the subject to proceed. Let us bow the knee to no standard sequence—Euclid's, or that of the Cambridge Syllabus, or any other.

WILLIAM P. MILNE, M.A., D.Sc.

Mathematical Master, Clifton College.

Prof. Bryan has given, in THE SCHOOL WORLD of last month, a brief *résumé* of the position of the teaching of elementary geometry at the present day, and has raised the question as to the desirability of having a standard sequence of the propositions to which all will adhere. The difficulty is really one of the external examiner and not of the teacher. Metaphysicians have spent their days in vain in trying to discover the exact meaning to be attached to the pious legend at the top of geometry papers, "Any proof will be accepted which seems to the examiner to belong to a logical development of the subject." Furthermore, we were all familiar in our student days with the principle in higher geometry of reciprocating Pascal if asked to prove Brianchon, and reciprocating Brianchon if asked to prove Pascal.

Anyone who has done examining work in which the sequence of the teacher could not be ascertained has

been faced with the difficulty of there being no standard sequence of propositions, and he is frequently at a loss to decide what the logical value of a proof sent up really is. But when the difficulty has been stated, how is it to be remedied? Who is to decide the standard sequence? Either it must be an external authority with the power to enforce its commands—and what is more disastrous to keen, intelligent teaching than the numbing effect of the external authority, or, as Edward Thring of Uppingham used to call it, "The Dead Hand"?—or it must be a recommendation from some such body as the Mathematical Association—and the teacher reads or does not read such recommendations according to his humour or his temperament, and then uses his own judgment, which is the state of affairs at present.

Again, Prof. Bryan says, "It is important to notice that the question of the order of sequence is a very different thing from the question as to *how* geometry is to be taught." Surely the decision of the sequence is part of the "*how*" by which geometry is to be taught, and to interfere with the teacher's sequence is to interfere with the teacher's natural presentation of the subject.

The difficulty involved in the lack of a standard sequence of propositions is undeniable, but it seems unavoidable.

W. E. PATERSON, M.A., B.Sc.

Mathematical Master, Mercers' School, E.C.

Geometry is a living science, with continual new developments, and with important applications in daily life. Why should geometry be confined by a standard sequence any more than other branches of mathematics or science? No doubt it is advisable that everyone should be trained to draw the correct conclusion from given premises, to give sound authority for every statement made, and to detect the flaw in an unsound argument. Such training up to recent years was provided in geometry, as presented in Euclid's elements, and in geometry only. But now this logical training is a necessary accompaniment of all teaching in science, and ought to accompany all teaching in mathematics; yet it is not suggested that a standard sequence is necessary for chemistry, physics, arithmetic, or algebra.

There is no need to discuss here how far Euclid's course is strictly logical, but the scorned "School Geometry" provides a similar course. Like Euclid, each writer brings together undisputed facts (definitions, axioms, postulates, inductions, or laws), based on experience and observation, and on them builds up a logical sequence of propositions. Some writers treat areas before the circle, others the circle before areas; some place proportion early in the course, others omit it altogether. But, whatever be the book used, each individual pupil goes through the complete course specified by Prof. Bryan: (1) exercises in the use of mathematical instruments and accompanying introduction to the various geometrical concepts; (2) experimental work in which geometrical truths are discovered; (3) a course of deductive geometry. Thus while each teacher is allowed ample freedom in his

treatment of the subject, the traditional companionship of geometry with logic is retained.

The sole reason for the suggested standard sequence is that it would be a boon to examiners. It must be very annoying to an examiner, steeped in Euclid, to find that Euclid I. 8 is sometimes proved with the aid of Euclid I. 24, and that Pythagoras's theorem may be easily proved by using the properties of similar triangles. Most examiners have some acquaintance with many text-books, but no examiner has a thorough knowledge of all text-books; there must, therefore, be continually recurring doubt whether the proof offered by a candidate is really part of a logical sequence or whether the candidate, treating as a rider what was meant to be book work, has ignored sequence altogether. This seems to be the only reason for the suggested standardised sequence, and it does not seem sufficient to justify the surrender of the freedom which was fought for during so many years.

Prof. Bryan thinks that the good effects of the last ten years would remain; this is very doubtful. The temptation to force boys through examinations by means of carefully prepared proofs of the standard propositions would be very strong; if there is any return to the standard sequence a definite minimum of marks obtained by solution of riders ought to be a necessary qualification for passing in geometry.

One more remark. Who is to decide what propositions are self-evident? Teachers of mathematics are the least qualified to decide this point; many years of teaching have rendered them unable to distinguish between what is really self-evident and what is very easy to prove; they are also inclined to think that what is capable of proof ought to be proved, even though self-evident. The proverbial man-in-the-street, who has forgotten all the geometry he ever knew, or the average child of ten years, who has not yet learnt any geometry, would be the best judges whether a proposition is self-evident or not.

A. W. SIDDONS, M.A.

Assistant-master, Harrow School.

I gladly accept your kind invitation to write some brief comments on Prof. Bryan's letter on the above subject.

It seems to me that this letter provokes two questions: (1) Is a "standardised sequence" desirable? (2) if we must have a "standardised sequence," is Euclid's the one to adopt?

Let us take the second question first. Euclid imposed on himself the restriction that he must not assume the existence of a line until he had given a construction for the line and proved the validity of the construction (*e.g.*, he was unwilling to assume the existence of the bisector of an angle in proving the equality of angles at the base of an isosceles triangle). This restriction had an all-powerful influence on the order of his propositions. To-day we no longer deem it wise to retain that restriction in a school course; why should we then retain the order which was determined by that restriction? One thing that impressed many schoolboys of ten and twenty

years ago was the apparently chaotic order of his propositions; some of the abler teachers of that time enabled their pupils to see and appreciate some of the reasons for choosing that order, but what rhyme or reason can anyone find in Euclid's order if "hypothetical construction" is allowed? This seems to me good and sufficient reason for not readopting Euclid's order, so I will not pursue that question further.

With regard to the first question, I would say that, if a teacher wants a "standardised sequence," in all probability he is a bad teacher and his aim in teaching is not to develop the child but to get him through examinations. Again, if an examiner wants a "standardised sequence," he wishes to fetter all teachers and to destroy true education in order that his own work may be made a little easier. Prof. Bryan speaks of "the difficulty of obtaining uniformity." I can only hope that the difficulty may prove insuperable. There is far too much danger of uniformity in these days of examinations. Why should we try to take all life out of teaching for the sake of making an examiner's life a little easier?

I am an examiner as well as a teacher, and I fully appreciate the examiner's difficulty, but the interests of teaching must not be subordinated to those of examinations. Examinations are not the aim and object of true education.

H. G. WILLIS, M.A.

Senior Mathematical Master, Manchester Grammar School.

Underlying every discussion of the teaching of geometry is the fundamental question, Why is it taught? Is it chiefly for its own sake, *i.e.*, for its practical use in after life, or is it chiefly for the sake of the mental training and development that it affords? We shall all doubtless agree with Prof. Bryan as to the desirability of an elementary course of practical geometry; but of what use to the ordinary man is the subsequent course of theoretical geometry? Engineers and a few others who require a knowledge of geometry form so small a fraction of the population that their needs may well be ignored, although I believe they will derive still greater benefit from such a course as I advocate. We infer, therefore, that its chief use is for the education of the mind. Each of us ought then to give his best teaching and to adopt that course of geometry which in his opinion most nearly approaches scientific perfection. Prof. Bryan seems to give his case away when he says, "every teacher has his own methods, which in his hands succeed better than any other methods." What more than this can possibly be desired? When the pupils have come to the end of the various courses, their knowledge of geometry will be very nearly the same in amount, although I fail to see any advantage in this result. Will Prof. Bryan point out what advantages will accrue from all teachers and pupils using the same sequence? I can see none. Is he not thinking of the troubles that beset a conscientious external examiner? For such a reason as this we certainly must not detract in the least from anything beneficial to our pupils.

I do not discuss Euclid's wholly unscientific mixing of theorems and problems, as I cannot believe that it is advocated. As to the defects of old methods of teaching and their remedies, I more or less agree. As to the disadvantage "(1) that a great many propositions in Euclid are self-evident," this I dispute. I grant Euc. I. 13 and 14, but not 17, for in elliptic space (Riemann's) two sides of a triangle may be less than the third, and we do not know that the space we live in is not elliptic, with closed lines extremely long but finite, so that a proof is necessary for Parabolic or Euclidean space.

Why in geometry alone of all branches of mathematics should we have a fixed sequence? In arithmetic, algebra, trigonometry, &c., we have hosts of books adopting various orders; out of all this struggle for existence the fittest must survive. This seems to be the natural and only way by which improvement can be affected. In the case of geometry we see only the very beginning of the process of natural selection.

I have seen nearly all the recent geometries, and consider them to be either rearranged Euclids or compromises with Euclid. I doubt if there will be much improvement until the writers of geometries grow bolder and more independent. The universities, with their Local and Entrance Examinations, dominate most injuriously the whole subject of geometry; they compel teachers to keep close to Euclid's sequence, and thus prevent the sale, and therefore the writing, of geometries on more scientific lines. The Association for the Improvement of Geometrical Teaching might have effected much more had it not issued a sequence of the propositions which was a compromise with Euclid; this, of course, checked all originality.

To the inquiry whether a bad recognised sequence is better than no recognised sequence, I say most emphatically, No! That many teachers would be glad to go back to Euclid's sequence I greatly doubt.

As I have already attempted to arrange the propositions in a natural, logical, and scientific order, I may perhaps describe this arrangement. In part i., published by the Clarendon Press, I discuss somewhat fully three fundamental axioms: (1) the axiom of displacement, on which depend the superposition proofs; (2) the axiom of continuity, which is rarely used in other geometries; (3) the rotation axiom, which I prefer to Playfair's or Euclid's XIIth, each of these alternatives defining our space as Parabolic or Euclidean. The order then is Euc. I. 15, 32 from rotation axiom, 16, &c.; Euc. I. 5, 18, 6, 19, 17, referring to a single triangle; loci of points equidistant (1) from two points, (2) from two straight lines; Euc. I. 4, 24, their converses 8, 25 by rule of conversion, or method of exhaustion, 26, these referring to two triangles; in the next chapter come problems; in the third chapter parallel lines are defined as the limiting position of straight lines meeting in a distant point; the propositions about parallels follow almost in Euclid's order. This is the sequence I prefer, although I have given a few alternatives especially to allow the use of Playfair's axiom. If a few more writers would boldly throw off the Euclidean fetters and publish their views of the best scientific order, I think a really sound arrangement would soon be evolved.

W. P. WORKMAN, M.A., B.Sc.

Headmaster, Kingswood School, Bath.

The results of the "reform movement" in geometry appear to me to have been as yet deplorable. We have carried everything to extremes. I am convinced that in its logical discipline the subject has greatly lost in value. Geometry seems to most schoolboys to be represented by a process of fiddling about with ruler and compass, and they appear to be almost always satisfied with empirical results. I believe that this is largely due to the lack of a definite sequence. It is difficult under present conditions, when a proof is being studied, to ask a boy his reason for a particular conclusion. Ten years ago or more he might have answered "Euc. I. 4," and now he can only say "The proposition about the congruence of triangles the proof of which the Board of Education said that we might omit," or something of the kind. No doubt there were abuses, and references were learnt off by heart, but any teacher worth his salary or his salt could easily check this. Matters may adjust themselves in time under the new system, but I am personally of opinion that it would be a great step in the right direction to have an authoritative sequence. It is another matter to ask for the restoration of Euclid's. We have surely moved since B.C. 300. Would not a commission nominated by the universities, old and new, by the H.M. Conference and the H.M. Association, and by the A.M.A., produce a sequence that would command universal acceptance in view of the fact that it would soon be the only one recognised by the examining bodies?

SUMMARY AND REPLY.

By Prof. G. H. BRYAN, F.R.S.

In my original letter I indicated that a desire existed for a standardised sequence in geometry, and inquired whether it might not be possible to adapt Euclid's sequence to modern requirements.

No mention was made in the letter of examinations, and it was perhaps a pity that it was not distinctly stated that the suggestion was made on grounds entirely distinct from the requirements of these.

What I had in mind was the complaints I have heard from a good many teachers—that they find the new geometrical teaching characterised by a certain want of definiteness of purpose, which they attribute in some measure to the absence of any *recognised* sequence, and to the multiplicity of text-books each with a different treatment. The letter is by no means the first communication that has appeared in print on the subject, and I fully expected to be attacked for not referring more explicitly to previous writings and discussions.

Instead of that, I am accused of "advocating" a drastic and reactionary measure by which a reversion to Euclid is to be forced on schools by the tyrannical despotism of examining boards.

Something of this kind did actually take place when people were in a hurry to abolish Euclid. It is true that there are many teachers who, like Mr. Dale, have never seen any reason to discard Euclid, and that there are many others who were glad to continue the changes which they were already beginning

to make in view of the increased freedom of method previously allowed in examinations nominally defined in terms of Euclid. But a large number of teachers were not sufficiently strong to resist the flowing tide until they could swim better, and they were practically forced to abandon Euclid and teach something else which did not satisfy them so well. And when we remember that text-books were brought out "to meet the new requirements," it is evident that examination pressure did actually exist.

May I, therefore, again state that I contemplated a *recognised* sequence for the guidance of teachers, and not a *compulsory* sequence for the use of examiners.

As the question of examinations has been forced into this discussion, I would point out that the difficulties in this connection will almost, if not entirely, disappear if people will only agree not to set bookwork in the form of propositions to be written out in the examination room. On this point I entirely agree with Mr. Godfrey. As an examiner I have frequently protested against these questions, which merely put a premium on the memorisation of bookwork. Personally, I do not find that they make it easier to examine; indeed, very much the contrary. And it must be remembered that a "bookwork" question does not necessarily mean setting a proposition, nor does the proposal mean the abolition of bookwork.

Unfortunately, there appears to be no agreement on this point, and I am not sure that even the teachers would altogether like to see these proposition questions abolished. I wish the opponents of the fixed sequence had all definitely stated their views on the matter. I can probably guess the views of the director of examinations from the character of the papers set by the Civil Service Commission, which are blameless.

If examinations did nothing worse than compel boys to go through Euclid's propositions, we should have very little to complain of in our examination system. But the remedy is simple in this case, and worse mischief is done in other directions.

To pass on to the question of sequence in *teaching*, the demand for a sequence in geometry and not in other subjects surely arises from the following considerations:

(1) A large proportion of the theorems in higher mathematics spring directly from the fundamental truths of geometry. In such cases the only condition necessary for logical sequence is that the required geometry should be studied first.

(2) It is always the fashion to teach geometry on a deductive basis to a far greater extent than other subjects. No one teaches algebra by deductive methods, at any rate except to a very limited extent, nor are algebra questions usually set involving "proofs" of the fundamental laws.

(3) The need for a sequence is further accentuated by the subdivision of the subject into watertight compartments, called propositions, enclosed in larger compartments called books, each of the small compartments having a distinctive heading at the top and ending in Q.E.D., either written or implied.

No question of sequence occurs to the same extent

in experimental or constructive geometry or mensuration. A remark by Dr. Filon illustrates this point. Pupils are asked to draw diagrams on a reduced scale before they have learnt the properties of similar figures which show this to be possible.

If the abolition of Euclid had meant the abolition of deductive geometry as a separate subject, the question of sequence would have simply ceased to exist. But it did not even do away with the watertight compartments. The main effect of the change was that these were rearranged and differently numbered, and thus the result was the loss of the one sequence that was well understood.

The change of method involved in the passage of pupils from one teacher to another may have far-reaching effects unless exceptional judgment and tact is exercised in carrying it out. I speak from early experience, having had five different pronunciations of Latin forced on me, and having had my knowledge of the declensions greatly retarded by a teacher who insisted that it was wrong to say the accusative before the genitive.

The trouble has arisen largely from the fact that the abolition of Euclid was forced on our schools before we had a standard treatise on geometry written by a mathematician sufficiently powerful and influential to secure its widespread adoption by the methods of survival of the fittest. Such a book would have given us for the teaching of geometry the same advantages in the matter of definiteness of purpose that have been secured in higher subjects by Routh's "Rigid Dynamics," Forsyth's "Differential Equations," or the treatises of Salmon. Instead of such a constructive policy we had a destructive one, and a number of text-books were written, in many cases under pressure of limited time, all competing with each other in the struggle for existence. Several of your correspondents would evidently welcome a standard treatment, and there appears a general idea that *something* is wanted which we have not got at the present time. In the meantime, there appears to be such widespread disagreement as to what is desirable that the problem of finding a worthy successor to Euclid is no more likely to be solved in the near future than is the problem of a universal language now that Latin has ceased to be the language of the learned world. If the present discussion accelerates the attainment of such a desirable end it will have been useful.

I thank my old friend "Bayliss of Peterhouse," as I know him, for his kind allusions to our college days.

Heredity. By L. Doncaster. x+140 pp. (Cambridge University Press.) 1s. net.—Modern research has cast so much new light upon the laws of heredity that the lay person interested in this subject—as who is not?—needs a concise and impartial statement of the main speculations and established facts now recognised by specialists in the study. Mr. Doncaster's little book provides just such an account. The application of these questions to eugenics is naturally the side of the subject which appeals most directly to the general reader, and it is treated here with marked seriousness and moderation. The book is well provided with diagrams.

CAMBRIDGE LOCAL EXAMINATIONS, 1911.

HINTS TO TEACHERS FROM THE EXAMINERS' REPORTS.

IN reading the following remarks from the examiners' reports, it should be borne in mind that attention is directed here to weak points only, and that the numerous words of praise have been omitted almost completely. The intention is to bring to the notice of teachers directions in which their pupils appear to experience unusual difficulty.

COMPULSORY SECTION.—Arithmetic.—Almost all the *Preliminary* candidates knew the method of finding simple interest, but in both examinations very great carelessness was shown in reading and in working the question. Profit and loss was beyond the reach of most of the candidates, and many did not know the meaning of percentage.

Some *Junior* candidates were quite incapable of doing simple multiplication correctly, and many sent up sheets covered with figures without any explanation. In the more advanced part of the paper, both in July and in December, there was a deplorable amount of inaccuracy and slovenly work. The work of many candidates was presented in so confused a manner that it was frequently very difficult, and sometimes impossible, to follow it. Many candidates showed want of judgment in deciding when to employ decimals and when to employ vulgar fractions. Knowledge of the tables of length and weight was imperfect; comparatively few candidates distinguished between area and volume.

Many *Senior* candidates made mistakes in perfectly straightforward simple work. The working in fractions was often clumsy and unnecessarily laborious. The work in decimals was better done than at the last examination.

ENGLISH SECTIONS.—The chief weaknesses in *English Composition* among the *Junior* boys were bad spelling, inattention to elementary grammatical rules, and an almost complete disregard of punctuation and division into paragraphs. In a large number of cases even the use of the full-stop was not understood. There were (especially among the boys) too many attempts at fine writing. The girls showed much more skill than did the boys in turning several simple sentences into one complex sentence, and in constructing sentences to illustrate the meaning of certain verbs. The passage given for punctuation was generally well handled. But the letters (especially the business letter) were poorly done by the boys, and though the girls acquitted themselves much better, the conventional points of letter-writing, which are so easily taught, were neglected by far too many—both boys and girls. The question least satisfactorily dealt with was that which required the correction and explanation of faulty sentences.

Some *Senior* boys and many *Senior* girls entirely ignored punctuation and paragraphing; the failure in this respect was, however, less generally apparent than in past years. Fewer worthless essays were sent in than of late, but at some centres there seemed to

have been insufficient training in the subject. Only a small proportion of the candidates were able to express the main facts of the passage given for condensation within the required limits and in good style. Many of the versions were disfigured by fantastic diction, or by ungrammatical constructions, or by suppression of salient points of the narrative.

In many instances in the *English History of Preliminary* candidates whole sections of text-books, which had evidently been committed to memory, were reproduced with little appreciation of their historical setting. At some centres the knowledge shown was lamentably weak and fragmentary.

From some centres very good work was sent in by *Senior* candidates, but, generally speaking, there was no improvement. A mass of irrelevant matter was set down as an answer to whatever question was asked on any given subject, and great confusion was shown as to facts and persons. There was much ignorance of political and ecclesiastical terms.

In the *Geography* answers of *Preliminary* candidates the answers given to questions on physical geography were much weaker; even as to Great Britain the commercial side was better known than the physical, and only meagre answers were given to the questions on important physical features of the world. In both examinations geographical terms were very poorly defined, and confusion between east and west was quite frequent.

A general inability was shown by *Junior* candidates to utilise the given scale to measure the distance between two places on a map. The questions on the natural features, agricultural pursuits, and important towns of the country lying in a direct line between two given English towns provided scarcely one good answer.

On the whole the geography answers were somewhat poor for *Senior* candidates. There was in many cases a lack of knowledge of the larger facts and principles of geography. Descriptions of places were given fairly well, the chief fault being the failure to state their positions accurately. The political importance of the Kiel Canal was grasped by but few, especially among the girls. Illustrative sketch-maps might have been given more frequently with advantage. Questions on railways were poorly done, and the statements made were often far from accurate.

CLASSICAL SECTION.—In the *Latin* answers of *Junior* candidates parsing was often careless and grossly inaccurate. Although the prose unprepared passage was occasionally well done, the quality of the work was inferior to that sent up on the set books. There was much inaccuracy in the principal parts of verbs. The substantives were generally accurately declined, but the pronouns often badly. In easy unprepared translation the usual causes of error were as frequently to be seen as ever: neglect of the commonest syntactical rules, confusion between words of similar form, and a determination to force the passage to agree with a hasty conception of its general meaning. While there was a fair proportion of candidates deserving distinction, they were supplied mainly by a few good centres. At some centres the candidates, almost without exception, sent in nothing but wild

guess-work. In composition there was a marked improvement. Very good work, indeed, was still rare, except at a few centres; but a much larger proportion of candidates than formerly attempted a version, and there was at least a corresponding increase in the number of those who were moderately successful.

MODERN LANGUAGES SECTION.—In the examinations in *French* the knowledge of simple accidence shown by *Preliminary* candidates was fairly good, but great weakness was shown in the application of this knowledge in given sentences. Verbs were especially weak. Translation from French into English was fair, though marred in many papers by guessing.

Not many *Junior* candidates chose the free composition, and the productions of these were largely worthless; a few, however, wrote admirable little essays. On the whole the standard of performance, both in translation and in composition, would appear to have advanced. About one candidate in five offered the set book. On the whole the work was highly unsatisfactory, particularly in July. The more difficult words and idioms were generally either mistranslated or omitted, and what was written was often guess-work and sheer nonsense. The tenses were habitually ignored. The translation of the alternative unprepared passages, taken by a large majority, was in many cases creditable and satisfactory, although there were very few papers of conspicuous merit. The most serious fault, and a very common one, was inattention to tense and particularly to the imperfect.

There was much carelessness among *Senior* candidates in regard to grammatical forms and constructions, and many were satisfied with giving merely the English equivalent of the French terms.

MATHEMATICAL SECTION.—The practical work in *Geometry* was well done by a large number of *Preliminary* candidates. Many, however, lost marks by inaccuracy in drawing or measuring the figures, and mistakes arising from carelessness in reading the questions were very common. The theoretical work was well done by only a few candidates.

The knowledge displayed of proportion and similar triangles by *Junior* candidates was very slight. In the more elementary part of the paper the riders were attempted by a fair proportion of the candidates and with a fair measure of success, but in the more advanced part successful attempts to do the riders were rare.

The bookwork was, as a rule, well written out by *Senior* candidates, but in many cases it was given incompletely or hurriedly; for instance, the description of a figure used in a proof was often omitted, so that it was not shown that the argument given applied to all cases of the proposition. The practical questions were also well answered by a large proportion of the candidates, but often the methods used were not indicated either by verbal explanation or by constructional lines. A large number of the candidates showed a misconception of the geometrical meaning of the word "locus."

There was also much room in the *Algebra* answers of *Preliminary* candidates for improvement in the application of the subject to concrete instances. The

examiners desire again to emphasise the importance of cultivating the habit of testing results. That the purpose of such numerical checks is still in many quarters misunderstood seems evident from the fact that in many cases, although the arithmetical test revealed inaccuracy, no attempt was made to revise the algebraic work.

The most frequent stumbling-block of the *Junior* candidates was the simplification of fractions; inability to bring fractions to a least common denominator, errors in signs, and improper cancelling of factors marred the work of a large number of candidates. Many did not understand the method of verification, and, though the solutions of the easier equations were generally correct, the handling of a literal equation indicated confusion and want of intelligence. In December the two equations in the more advanced part of the paper were badly done owing to mistakes in rationalising and substitution, and a problem was seldom correctly solved. Many candidates attempted to find the sum of an arithmetic series in its most general form, but the work showed that very few had any grasp of the principle, though a numerical example was often solved correctly. In both examinations very little work of any value was sent up in connection with permutations and the binomial theorem, and, though many appeared to have some slight acquaintance with logarithms, only those candidates who had fairly covered the whole range of the paper gave satisfactory answers.

NATURAL SCIENCES SECTION.—A large number of *Preliminary* candidates were in their *Chemistry* answers apparently unacquainted with the properties of such a common substance as sulphuric acid, and the answers to the question on coal gas in the July paper and the one on coal in December were far from satisfactory.

Few *Junior* candidates gave satisfactory accounts of the method of preparing pure crystals of a simple salt. In both examinations, whilst many were able to state laws and definitions correctly, comparatively few were able to show that they understood their meaning.

The *Botany* examiner reports that in the examination of actual specimens and their interpretation there were many failures and important omissions among *Junior* candidates: the drawings were frequently small and too indefinite to be of any value. In answers to questions requiring the application of their physiological knowledge, many candidates overlooked completely the supreme importance of the leaf in the nutrition of plants, and assumed that the root by itself was capable of supplying sufficient and suitable food. In many cases there were few signs of a practical acquaintance with plants in the field; for instance, scarcely one per cent. of the candidates gave evidence of ever having observed the sycamore fruit whirling in the air in its descent from the tree.

The work of a large proportion of the *Senior* candidates in *Botany* showed either lack of knowledge or inability to apply their knowledge, and it was evident that few of them had been taught to think. Again, while a minority of the candidates gave good and well-reasoned descriptions of the specimens set,

the answers of the majority were disappointing. Many candidates showed a lack of familiarity with experimental work, experiments being evidently often described from book knowledge only. Illustrative diagrams in the answers to the practical and other questions were often extremely crude; students should be taught to make clear outline sketches in which every line means something.

THE N.U.T. CONFERENCE AT HULL.

It becomes clearer year by year that the desire of many teachers, both in primary and in secondary schools, is for greater solidarity. The proceedings of the annual conference of the N.U.T. are naturally chiefly concerned with primary education. Only three resolutions out of the large agenda paper dealt specifically with secondary schools, but it was manifest in some of the other resolutions, and even more in some of the speeches, that the purview is no longer that of the primary school alone, and that there is a growing habit of looking on secondary schools as being very closely linked to the primary schools.

In the main conference a rider was added to the superannuation resolution that "it is desirable that a scheme should be devised to ensure adequate pensions for teachers in secondary schools." This was unanimously adopted.

At the close of the conference the remaining resolutions are put without discussion, and if not opposed by ten delegates rising in their places are declared carried. A long resolution was put and carried in this way, which asked for free secondary education, for maintenance scholarships for poor scholars, and for the abolition of limitations of age and curriculum in the primary schools.

As this resolution was not discussed it is impossible to say what was the real opinion of the conference upon it, or if a real examination of the difference between primary and secondary education might not have led to a modification of the opinion expressed in this summary manner. Mr. Bentliff, in an able presidential address, which was well delivered and appreciatively received, declared himself in favour of this policy, which would seem to be the present policy of the Union. It would be interesting to inquire into the overlapping between primary and secondary education which this would entail. Before secondary education was brought under public authorities in 1902, no doubt our system was inadequate, and there was much to be said in favour of allowing any well-situated primary school to carry its pupils as far as they would go. But it is open to argument that nowadays a proper delimitation is more economical and more efficient than the free-trade plan recommended by the president, and afterwards tacitly adopted by the conference.

Following the precedent of the Aberystwyth conference, a special meeting of secondary-school teachers was held on Wednesday evening. The president, having welcomed the members, gave up the chair to Mr. G. Sharples, the chairman of the Central Secondary Schools' Committee. One of the chief subjects discussed was "Superannuation of second-

ary-school teachers," which was introduced by Sir James Yoxall, M.P., who gave an account of the steps that had been taken by the Union in this direction and of the efforts which are now being made to press forward the matter in both a national scheme and in connection with local schemes. Mr. Ernest Gray followed, giving information as to what had happened in the matter in London. The meeting decided to recommend "that all teachers falling under the provisions of the Insurance Act should join an approved society consisting of teachers only," and instanced the Teachers' Provident Society as a desirable society. After a debate lasting over two evenings, this society had decided "that all teachers holding the Certificate of the Board of Education should be compelled to join the Union before being eligible to join the State section." This allows secondary-school teachers (not being "certificated teachers") who may be compelled to insure under the Lloyd George Insurance Act to join the State section of the Teachers' Provident Society.

After an interesting discussion the following resolution was passed: "That in the opinion of this meeting a cordial understanding between the various bodies representing teachers is essential to the best interests of the whole profession."

Mr. J. L. Paton, of Manchester, introduced the question of examinations in secondary schools. After an interesting and exhaustive analysis of the advantages and effects of examinations upon paper, he recommended as his main suggestion for reform that an external examination should invariably be accompanied by inspection.

A general discussion ensued with respect to the constitution and mode of election of the Central Secondary Schools' Committee, which was brought to a close by the chairman undertaking that the whole matter should be thoroughly discussed by the executive during the coming year.

HISTORY AND CURRENT EVENTS.

WE have recently seen in the papers a sketch of a memorial to be erected to the late King Edward. The inscription thereon is to be in Latin, thus: "Edwardus VII. Rex Imperator." Suppose that 500 years hence, or later, the block of stone on which these words are carved were one of the few relics of the twentieth century, what would the future historian make of it? He would perhaps be puzzled by the "w," but would have a "higher critical" way of emending it, and might come to the conclusion that this was a record of "an otherwise unknown Roman emperor, the only one who dared to use the forbidden title 'Rex,' and therefore a bold innovator of his time." Or if he knew, or thought he knew, something of mediæval Germany, he might add "Edwardus VII." to the list of rulers of the Holy Roman Empire, and infer that "our list of German emperors is evidently incomplete, since the 'VII.' implies six others, of whom our records know nothing." If he knew it was found in the island of Britain, he might think that the mediæval empire had conquered this country, and what theories he

might build on that "fact" we dare not surmise. And he would never suspect that a "regnum" ruled over an "imperium" thousands of miles away, or that Henry VIII. claimed that "this England was an empire."

In whatever generalisations we may believe on the subject of the freedom of trade from State patronage and control, we must admit that in three cases we must make exception. The trade in alcohol is regulated for the benefit of the consumer, going so far as to discourage him as a consumer, even in Europe, much more among Africans and others to whom this substance is an unknown novelty. So, also, is the trade in opium and substitutes therefor, the subject of much negotiation between India and China. But sugar! It has never been alleged that the consumption of this article was harmful, yet it is the subject of international agreements, and the trade is regulated as much as ever that in salt was regulated by the Grand Monarque and his successors in France. The rival natural sources of sugar are in countries under different States, and as one is superior to the other, and the rival States are determined to pay the larger cost of the inferior article, the "warfare" has led to treaties, and the production of sugar is regulated, not in the interests of consumers, but in that of producers. The papers are telling us, every now and then, of the international agreements as to these articles of commerce.

WHEN we were writing last month, we were at the beginning of the great coal strike. Now we are believing, though with trembling, that it is at an end. We have been calling it "a war," and indeed the truth of the epithet is not doubtful. There has been practically no bloodshed, but "war" is the only brief and truthful description of our crisis. As in other wars, it is the non-combatants that have suffered—we might almost say have suffered most. It has been a civil war—a private war—which reminds us of the Middle Ages, when baron fought baron, and, as in the times of our Wars of the Roses, made rival kings the excuse for their own feuds. When, in the fifteenth century, there was once more a king strong enough, he put down "maintenance and livery." So now our Government, strong in the support of public opinion, at least on this matter, has stepped into the arena and thrown down the bâton to stop the duel. "Wars" have changed in character and methods, but the duty and the interest of the State are still the same—to maintain peace.

WHEN does prosecution become persecution? Are rebellions ever successful? The classic answer to the second riddle is "No, for when it succeeds it is no longer rebellion." That answer suggests the answer to the first riddle. Prosecution is regarded as persecution when the prosecuted party triumphs. The best illustration of this is in the early history of the Christian Church. We have never read of Nero's prosecutions. The other extreme is illustrated by a picture we once saw of a famous burglar being flogged, with the legend "This is what poor Charlie Peace was afraid of." We have not yet reached the apotheosis of burglary, but we seem to be approach-

ing that of window-breaking. Militant Suffragetteism (if we may be allowed to coin a word) and "Syndicalism" are now in the prosecution stage. When, if ever, will the proceedings against them be called persecution, and text-books of history tell the story of juries finding verdicts and judges passing sentences "in panic," as we may read in Erskine May's chapter on the despotic period of Pitt (1793-6)?

ITEMS OF INTEREST.

GENERAL.

THE calamity to the *Titanic* on April 15th has probably been made the subject of sympathetic reference in every school in the country, and we should be lacking in human feeling if we passed over the event in silence. The ship—the largest ever placed upon the sea—collided with an iceberg just south of the Newfoundland Bank, and in four hours it and about 1,500 of our fellow-creatures found a grave beneath the waters of the North Atlantic. In the history of the world there has never been such an appalling disaster at sea, and never has the best part of human nature been so nobly manifested. Of the 700 or so survivors found by the *Carpathia*, which hastened to respond to the wireless appeal for aid, nearly all were women and children, with the exception of the seamen required to man the boats. The battle for life was not to the strong, but to the weak; with death before them the men placed the women and children in a position of safety, and then awaited their call. Their souls rose superior to their bodies, and the terrors of a tragedy are relieved by the thought of the heroic self-sacrifice it has involved. Such discipline and courage make us proud of our heritage, and give us reason for hope in the higher destiny of mankind, with the promotion of which every teacher is concerned.

MANY teachers in secondary schools are affected indirectly or directly by the provisions of the National Insurance Act. Their position is, in many cases, complicated by the question of the value to be attached to board and residence; and a further complication is due to the common-law right of the assistant-master to payment of salary during absence owing to illness. These matters were discussed at a general meeting of the Association of Assistant-masters on April 6th, when it was decided to form a provident society for secondary-school teachers. It is hoped that if all secondary-school teachers who fall within the scope of the Act will immediately send their names to the I.A.A.M. Office, 35 John Street, Bedford Row, W.C., the society will reach the minimum membership of 5,000 and be independent. Mistresses in secondary schools have already promised their hearty support.

ARE teachers in secondary schools destined to become a united body? Not the least remarkable result of the National Insurance Act has been the distinct *rapprochement* between the associations of secondary-school teachers. There is every likelihood of the formation of a secondary-school teachers' provident society. The Association of Assistant-masters is about

to celebrate its coming-of-age; one of the plans mooted is an attempt to secure special educational facilities for the children or orphans of assistant-masters. In this matter the hearty co-operation of the Headmasters' Association makes for unity. These points were taken up by Mr. S. E. Winbolt in his chairman's address to the I.A.A.M., and the speaker supported his plea for united action by reference to the joint meetings in Manchester, Liverpool, and London, which have been so successful.

THE insecurity of tenure of assistant-masters in certain secondary schools is little short of a scandal. Mr. Winbolt referred to two schools, one where there have been more than forty changes in the staff during the past three years; the other where a new headmaster told the staff at his first masters' meeting that he would inform them at half-term whether they were wanted or no. Four were not wanted; one of these, nearly fifty years of age, disappeared; another got work in South Africa. Before a pension scheme comes into operation, and there is every promise of a national scheme, such possibilities of injustice must be removed.

THE University of London has adopted a scheme for examinations for a certificate in French and for a certificate in German. The examinations will be held annually in August, and the first examination will be held in August, 1913. In each case the examination is intended primarily for teachers who are not specialists in the language, but who require a certificate testifying to their practical working knowledge of the language. Normally the candidate will be expected to have undergone a recognised course of training for the profession of teacher. The examination will consist of seven parts:—essays in English and in the foreign language, translations from and into English, dictation, phonetics, and an oral examination. The fee is £3.

THE *Terra Nova* has returned to New Zealand with dispatches from Captain Scott. On January 3rd the south polar party was within 150 miles of the South Pole. January 2nd was the date on which both Captain Scott, on his previous expedition, and Sir Ernest Shackleton decided to turn northwards so as to reach their ships in time to return to New Zealand that year. Hence Captain Scott had to decide on January 3rd whether to turn back or to go on, when going on meant another year in the Antarctic. His decision we know, and it is probable that Captain Scott reached the neighbourhood of the South Pole about January 15th, but this guess must wait for some months for corroboration. Captain Scott's description of his journey southwards has been widely published, and confirms in many ways the account supplied by Captain Amundsen. The latter reported fog and higher temperatures than previous expeditions had experienced; Captain Scott records a heavy snowstorm, fog, and a thaw. Owing to the snow and the thaw the journey up the Beardmore Glacier was a terrible experience, and on the whole the expedition was a week late on its schedule time, so that this one storm is probably responsible for the decision to remain in Antarctica for an additional year. On the

high plateau near the Pole the conditions and weather were more promising. The scientific work of the expedition is reported to have been thorough, and in this respect the present British expedition will have achieved permanent and important results beside which a mere "dash for the Pole" is of little account.

THE sixth biennial vacation course at the Oxford School of Geography will be held from August 6th to 23rd, 1912. An introductory lecture will be given on the evening of August 6th. There will be at least two lectures and one period of practical, or seminar, work, or an excursion each day. The lectures will be on selected topics of physical geography, the basis of economic geography, the geography of man, the teaching of geography, and regional studies of S.E. England, Ireland, and some other region. There will be classes on map-making and map-reading in field and laboratory for beginners, and on surveying for advanced students, and for landscape sketching. Seminars will be held for the study of land forms, climate, plant geography, the geography of man, the historical geography of Europe and North America, and for a more detailed study of the regions included in the lectures. The number of students who will be enrolled for the whole course is limited, and will be fewer than in 1910. The fee will be £3 3s. for the whole course. Certificates of attendance will be given to those who complete the whole course. Further particulars will be issued in June. Names should be sent as soon as possible to the Vacation Course Secretary, School of Geography, Oxford.

ON May 13th, under the presidency of the Lord Mayor, a conference will be opened on the subject of "Diet in Residential Schools—Public, Private, and Preparatory." Papers and discussions have been arranged dealing with both the theoretical and practical aspects of the subject, describing the arrangements at present in force, and the modifications suggested for their improvement. "The feeding of necessitous children" has been before the public on many occasions of late, and it is not amiss that some attention should be given to the feeding of those schoolboys and schoolgirls who are more fortunately situated. For although, in the case of the latter class, "necessity" for the provision of food, as such, can nowadays occur but very rarely, if at all, in the ordinary sense, it must nevertheless be admitted that the mere provision of a given bulk of food per head is by no means all that is required for adequately carrying out the feeding of the young. Practice and tradition still play a time-honoured part in the dietary and the diet-tables of too many schools to an extent which in itself suggests the advisability of inquiry; and the relationship of meals, their quality and their quantity, to work and play and sleep might often be revised and readjusted with advantage to all concerned. Many educational authorities are taking a practical interest in the conference, and a full interchange of views amongst those directly concerned in the subject should produce results of real value. Full details of the arrangements for the conference will be furnished by the secretary, Mr. Charles E. Hecht, 178, St. Stephen's House, Westminster, S.W.

IN the City of London Court on April 16, Judge Lumley Smith, K.C., gave a considered judgment of much interest to parents and the scholastic profession generally. Two ladies who keep a boarding-school at Lausanne, Switzerland, sued a solicitor of Sunderland for £44 10s. school fees and disbursements on behalf of his daughter. Defendant counter-claimed £45 for expenses of sending his daughter to Switzerland and bringing her back. The judge said that the defendant arranged to send his daughter to the plaintiffs' school and that upon her arrival it was found she had never been vaccinated. Vaccination was obligatory by the State law of the Canton de Vaud. Defendant objected to vaccination on principle, and at once sent for his daughter, who returned to England. Hence the present dispute. Both parties acted *bonâ fide*, and the contract had to be performed according to the law of the place where it was to be carried out, which was the Canton de Vaud. He thought that the plaintiffs were entitled to assume in the absence of the information to the contrary that the pupil had conformed to the general law of England, and had been vaccinated, and that she was not in the exceptional position resulting from her parents having obtained exemption in England. On the other hand, the defendant might reasonably have contemplated that vaccination laws might exist in other European countries, and he should for his own information and guidance have inquired whether there was a vaccination law in the Canton de Vaud, and whether exemption could be obtained under that law. Defendant could have conformed to the State law, but declined to do so, and preferred to remove his daughter. The removal created a vacancy, and fees were not remitted if a pupil left before the end of the term. Judgment was given for the plaintiffs for £43 13s. on the claim and counterclaim with costs. Defendant could have carried out his contract if he had wanted to do so and complied with the State regulations.

ON Wednesday of Easter week an army of 180 boys, generalised by the second master, of the George Dixon Secondary School, Birmingham, started on the task of levelling their playing field. The only land available anywhere within reach of the school, and this over two miles away, was secured three years ago, and a start was then made by the governors to convert it into a suitable ground for cricket and football. A small square was levelled, but the greater part of the field has been anything but good from a sporting point of view. The boys, under the direction of an "engineering" staff of masters, are removing a "fall," varying from three to five feet in a patch ninety yards square. They have individually borrowed tools and wheelbarrows, and builder fathers have lent planks for "ways." Working in shifts—two a day, each boy working two shifts in two days, with one complete day off in three—the lads have had a merry and healthy time, and incidentally have voluntarily saved their city an expenditure of more than £250. The preliminary theoretical preparation done in school—mathematical, geographical, geological, civil engineering—has been of great educa-

tional value, and the actual sequel of navvying and engineering is a practical complementary experience that the workers will never forget.

NEW buildings for the Watford Grammar School were opened on March 20 by the Earl of Clarendon, accompanied by the President of the Board of Education, Mr. Joseph A. Pease. This school was established twenty-eight years ago on an old "free school" foundation, and under its first master, Mr. W. R. Carter, has had a very successful career. It numbers more than 300 boys, and is probably the largest secondary day school in the kingdom for the population it serves. The new school is built on a site of twelve acres, part of an ancient park, at a cost of £26,000, and is admirably arranged and equipped. The chemical and physical laboratories and the manual instruction room each accommodate thirty boys. There is an excellently designed art room, two lecture rooms, with the proper number of class-rooms for 375 pupils, a dining-room, gymnasium, library, reading-room and museum, and a noble hall. Mr. Pease said that he knew of no better case in which an ancient endowment restricted by denominational conditions and by lack of flexibility had been changed so as really to carry out the intention of the founder, and at the same time produce a school capable of meeting modern requirements, thus illustrating the adaptability of the English people. He thought that there was probably no case known to the Board of Education in which buildings for a secondary school were better adapted for the purposes for which they were intended than those now opened.

THE Board of Education's Report for the year 1910-11, which has recently been issued, is by no means a perfunctory production. Many readers will be especially interested in the careful and lucid historical survey of the curriculum of the English primary school—a feature of the report which is of more than transitory value. The history of the curriculum is traced from the year 1833 down through the days of the Revised Code and payment by results to the year 1902, when the new authorities were set up by the Education Act. All this leads on to a suggestive description of the progress made during the period 1903-10, under the headings into which the curriculum of the normal well-equipped primary school is divided in the current Code. The account is simply historical and descriptive, and is intended to present a typical view of the teaching which is actually now to be found in the schools. Two general tendencies are noted which underlie the changes made in recent years. First, the child's life in school is being brought into closer relation with his life out of school. Education is less bookish and more practical than it was. From this naturally follow increasing differences between schools the geographical environment of which differs, as well as between boys' and girls' schools. Secondly, the influence of the school is spreading more widely over the whole sphere of the child's activities. The school now concerns itself with his bodily as well as his mental and moral development, with his play as well as his work.

EQUALLY interesting and important are some of the secondary-school topics to which reference is made in the Board's report. The experiments made in observation visits to other schools by acting teachers in secondary schools are referred to sympathetically and hopefully. On the question of the teaching of housecraft in girls' schools the Board is naturally reticent, in view of the fact that the whole subject has been handed over to the consultative committee for full consideration and report. With regard to the teaching of Greek, it is interesting to find that of the 2,000 boys and 300 girls who are being taught this language in grant-earning secondary schools in England, about 15 per cent. are pupils in municipal and county schools of recent origin. More important still is the section of the report relating to the teaching of mathematics. The scope of the mathematical course commonly provided is criticised, but the report adds that even when defects of curriculum are allowed for, the chief difficulty remains—the poverty of much of the teaching. Statistics gathered from about 650 schools show that out of 2,500 teachers of mathematics barely 400 can be said to have a high qualification, and that in about 20 per cent. of the schools no teacher has read mathematics as far as the calculus. These facts, though not altogether conclusive, as the report itself states, are certainly disquieting.

THE report of the Association of Assistant-mistresses yields evidence that the twenty-eighth year's work of the association has been both strenuous and timely, especially in regard to the question of pensions and superannuation, and the position of secondary-school teachers under the Insurance Act. Another interesting feature of the report is a tabulated statement of the salaries paid by county councils and county boroughs to assistant-mistresses in secondary schools. This is a really useful piece of work, because accurate statistics are an essential preliminary to any well-considered scheme of reform in the matter of salaries. Miss Lees's presidential address, which is here given in full, contains an interesting, though (we think) extremely debatable, pronouncement on the teaching of science in girls' schools, with special reference to "housecraft" and "so-called domestic science." The problem which lies ahead surely involves a careful consideration of the question whether, for educational purposes, any line can be drawn with hard precision between "pure" and "applied" science.

A CIRCULAR of inquiry sent to the head teachers of the elementary schools in Staffordshire by the Education Committee of this county may be taken as a gratifying sign of the times. While appreciating fully the work of the teachers and realising the progress made in education during the last ten years, the committee still feels that more initiative might be granted to individual teachers, and that the curricula in the schools might become even less uniform and more progressive than at present. The circular says that the modern trend of education is all towards increased training of the body and mind by manual practice and by approximation to the work of actual

life. The committee has been doing all in its power to encourage the development of school gardens, modern drawing, handicraft and light woodwork, bee-keeping and poultry-keeping, cookery and laundrywork, and the rational application of needlework. The great improvement that has taken place in the training of infants and the development of kindergarten methods is recognised. The committee feels, however, that a more detailed knowledge of the interests and special qualifications of the teachers might enable it to cultivate and develop special branches of work in the schools without any very serious addition to the expenditure. Consequently, the circular has been sent to all the head teachers in the employment of the committee, together with a schedule for enumerating special qualifications, which every individual is at liberty to fill up or not as he chooses. It is pointed out that it is impossible to promise that the filling up of the paper will be followed by any special results in any given instance. The questions asked are such as the committee thinks are most likely to be helpful in carrying out the proposals.

Indian Education (February) announces that the University of Bombay has established a degree in commerce. The compulsory course provides a grounding in English and economics, and in the fundamental elements of business law and business knowledge. Optional courses allow for specialisation as (i) bankers, (ii) accountants, (iii) actuaries. Large donations are promised or in prospect for the requisite equipment, so that the new faculty will make an excellent beginning.

The American Journal of Geography for November, 1911, contains an interesting article on the manufacturing industry of the Mohawk Valley, in which three stages of development are traced. The first stage depended upon water-power, and during that period factories were established on the streams tributary to the Mohawk. Several causes combined to produce a change to steam-power: these were the invention of the steam engine, the discovery of coal in Pennsylvania, the construction of railway lines from the mines to the mills, the diversion of water to supply the Erie Canal, and a general loss of water due, it is said, to deforestation. The third stage is that of electrical power mainly dependent upon water. Electricity is made on the upper streams of the high Adirondack region, and transmitted to the factories; it is also made at the coal mines, and transmitted to the same factories. The eastern part of the valley can be supplied with electricity from the Upper Hudson and the western part from Niagara Falls. The net result of these power changes is that the Mohawk Valley is more than a great highway—it is a central manufacturing region with easy transport facilities to the Great Lakes and the Ohio Valley, to Canada, and to New York.

THE same journal for January and February, 1912, gives prominence to a new form of test which is alternative to the usual form of question set in geography. The pupil is asked to "pick out the absurd

statements below"; then follow 18 statements, from which we select two: "8. We were in Cape Town on July 4th, and it snowed hard." "15. Because of the somewhat rarefied atmosphere over deserts, the nights are warmer than normal." A more difficult example of the same type of test is given as follows: "Some of the following statements state facts and some do not." Pick out the untrue statements and, if possible, state why the statements are untrue. *E.g.*: "4. The more northerly latitude of Minneapolis, as compared with London, accounts for the colder climate of the former." "12. The extremely cold winters of Montana are largely due to the chilling winds from the Pacific." British teachers of geography will perhaps find here a useful suggestion, which might be equally well applied to other subjects than geography.

SCOTTISH.

THE folly of giving to pupils whose future interests must be chiefly rural the training suited for urban conditions is now generally recognised, but a really satisfactory and adequate system of rural education has still to be evolved. Experiments in this direction are being carried on in Scotland under the auspices of the various agricultural colleges, and already a considerable amount of progress has been made. One of the most promising of these efforts has been made in connection with the Gordon Schools, Huntly, by the North of Scotland Agricultural College. Full particulars of the experiment are given in a pamphlet, "The School Garden," issued under their authority and with the approval of the Scotch Education Department. Modest as is the size of the brochure, it is crammed with facts from cover to cover, and will prove invaluable to all who are engaged in similar efforts. An acre of ground was taken for school gardening purposes, and the whole work of preparing, digging, and laying off the plots was done by the pupils. When the ground was broken in and seed time over, the pupils took in hand the erection of a potting shed and tool house. The plans and specifications for these were drawn up by a third-year pupil in the evening continuation classes of the same school, but all the work of construction was done by the pupils in the supplementary class of the day school, aged from twelve to fifteen years. Those who question the educational value of such efforts should get a copy of this pamphlet; they will rise from a reading of it convinced, like the present writer, that an invaluable educational training can be obtained in this way, given the right man at the head of operations. To Mr. Alex. Logan, the responsible teacher, is due the credit for the notable success of the experiment and for the fascinating record he has prepared in regard to it.

AFTER a long and at times hazardous experience the superannuation scheme for Scottish teachers received the approval of both Houses of Parliament on April 1st last. Up almost to the last day certain school boards "of the baser sort" sought to check its progress. Having failed to get anyone to block the scheme in the House of Commons, they had resort to the House of

Lords, but here again they were foiled, and now must accept the inevitable. It is now well over three years since the scheme was outlined in an Act of Parliament, but teachers have borne the delay with patience, well knowing that the Education Department was doing its best to hurry on the measure. The delays and postponements have proved most trying to the leaders in the superannuation movement, especially to Mr. D. M. Cowan, Glasgow, who has fought so indomitably for the cause, but all through they were strengthened by the knowledge that the Education Department had the success of the scheme entirely at heart and was determined to see it through.

THE Leaving Certificate Examinations of the Scotch Education Department are over for another year. The papers on the whole have maintained the high level of previous years. They are, as usual, suggestive and stimulating to teachers and eminently fair for the pupils. No other examinations are conducted on such broad and sane educational principles, and probably no others command so generally the confidence of teachers. A word of criticism, however, is required in the case of English. Both in the higher and in the lower grade the questions partake too much of the purely literary character. Pupils with a strong literary bent revel in them, the average pupil flounders. Since English is a compulsory subject for all forms of group leaving certificates, the questions set should have regard to pupils with strong scientific or mathematical bent, as well as to those with linguistic power. The plain, matter-of-fact, unimaginative student of good intellectual calibre has simply no chance of getting a certificate with the present style of question.

THE Education Code for 1912, which has just been issued, contains few changes of any moment. Intimation is made that the minute reducing the number of pupils per teacher has been postponed for another year. Apparently the importunate appeals of school boards for payments to account in the course of the year are at length to bear fruit. Notice is given that all grants falling due after February 28th, 1913, shall be paid in three instalments, namely, at June 30th, October 31st, and April 30th. This will be a decided boon to the smaller boards, who have frequently to overdraw their bank accounts at a heavy rate of interest to meet current charges. While special qualifications have hitherto been required of all assistants in secondary schools, no such demands were made in the case of head teachers, who were only required to be over twenty-one years of age and vaccinated. In future the head teacher will only be recognised if he possesses the qualifications laid down in the training regulations for specialist teachers.

IN the course of a discussion in the House of Commons a concerted attack was made on the Secretary for Scotland on account of the policy of the Education Department and its permanent chief. Mr. Munro Ferguson, who led off, complained that the department was continually launching schemes on the country for which the ratepayers had to pay. Sir Walter Menzies, M.P., said that legislation by minute had got beyond bearing. Each new school that had

been built recently had received the approval of the department, yet the plaster on them was scarcely dry before they had to be reconstructed to meet a change in departmental policy. Mr. Pirie, M.P., attacked Sir Henry Craik, who had come to the defence of the department, and called him "the greatest bureaucrat the Scottish office had ever known." Talk of this kind does not reflect much credit on members who can be sarcastic and witty and libellous at the expense of permanent officials who are unable to reply. It is not playing the game.

A CIRCULAR has been issued by the Education Department to school boards and managers intimating that the provisions of the Superannuation Act of 1898 will, so far as Scottish teachers are concerned, cease to have effect from April 1st, 1912. The department proposes to make a rough approximation of the annual salary bill paid by each school board, and from these figures an estimate can be made of the total contributions for superannuation purposes which will be due at the end of the financial year. On this estimate the department will ask for the payment of three instalments during the financial year, leaving the final balance to be adjusted at the end of the year. Meantime a return has been asked for from each board showing the names of all teachers in active employment with the yearly salary of each.

ACCORDING to a recent Government return, Scotland seems to be suffering from a plethora of school authorities. There are altogether 960 school boards in the country, with a total membership of 5,651. The number of school boards in the different counties varies greatly. Thus Aberdeenshire has no fewer than ninety-two boards, while Lanark, with a population four times as great, has only half that number. Mr. Beattie, late president of the Educational Institute, found on investigation that several of these boards had more members than teachers, while at least one had more members than pupils. The case for enlarged areas is greatly strengthened by the publication of the present return.

IRISH.

THE financial year ending on March 31st has closed without fulfilment of any of the definite promises made by Government officials to secondary schools in Ireland. Both the scholarship scheme for assisting pupils from primary to secondary schools and the increase in the grant to secondary schools through the Intermediate Board have come to nothing. The latter is bound up apparently with a scheme—as yet *in nubibus*—for improving the position of secondary-school teachers by registration, and it is to this that renewed attention is now being given by different associations of teachers. It is clear that with the formation of a teachers' registration council for England and Wales it is necessary to have a corresponding movement in Ireland, if Irish schools are to keep pace with those across the water. Representations to Government on this matter will be likely to have more weight if the needs of a real teaching profession are considered, and not merely the safeguarding of the interests of present teachers.

THE Central Association of Irish Schoolmistresses has addressed a letter and statement to the Chief Secretary, dealing with registration, of which the chief points are as follows. For five years after the formation of a register teachers shall be included (1) who have been teaching for full time in secondary schools for three years provided that two of these years were previous to the formation of a register; (2) who have passed a qualifying examination of at least senior grade standard, and have taught for full time for at least three years, and two at least in the same school; and (3) who have taken a university degree or an equivalent, and have been teaching for full time for one year; in all cases subject to a satisfactory report by recognised authorities, viz., the head of the school in which they have taught and the inspectors of the Intermediate Board. At the end of five years the justifications for admission to the register shall be (a) a degree in a recognised university or an equivalent, such as, for a modern language teacher, two years' residence abroad, or, for a science student, the diploma of the Royal College of Science; (b) a recognised teaching diploma or certificate following a training course of at least a year; and (c) a period of probation of at least one year as a full-time teacher in a recognised secondary school.

THE Incorporated Society of Assistant-masters defines its attitude in more general terms. It insists that secondary-school teachers have the first claim on any increased grants made to secondary education, that admission to a register should be comparatively easy for existing teachers, that the minimum salaries for registered teachers should be £100 per annum, rising by annual increments of £10 to £300, and paid direct by the Intermediate Board, that there shall be a pension fund administered by the Intermediate Board, to which teachers and not schools shall contribute individually, and that the benefits of increments of salary and of pensions shall be retrospective.

THE Dublin and Central Irish Branch of the Teachers' Guild has also forwarded a memorial to the Chief Secretary dealing with registration. It contemplates two grades of teachers in intermediate schools, a lower grade including teachers of general form subjects and a higher grade including teachers of special subjects. For both grades there should be academical and professional qualifications. The academical qualifications for the lower grade should be a university degree and for the higher grade a university honours degree, or where that is not possible some other adequate standard. The professional qualifications should for both grades be theoretical and practical, the theoretical being either a course of training in an approved training college or the possession of a recognised diploma in education, and the practical being experience of actual teaching during a probationary period of not more than two years. It should not be essential that the theoretical qualifications should be obtained before the probationary period begins. Registration should not take place until a teacher is twenty-one years of age, and should carry the advantages of (a) security of tenure, (b) reasonable salary, and (c) pension.

Security of tenure should mean the right to proper notice of termination of engagement and the right of appeal to a constituted authority. Reasonable salary should be obtained by schemes of salaries, not necessarily identical, drawn up by the different schools; for the lower grade a salary is suggested of £100 for men, rising to £200 a year, and of £80 for women, rising to £160, and for the higher grade of £150 for men, rising to £300, and £120 for women, rising to £250. These scales should be guaranteed by adequate grants made to schools by the Intermediate Board on condition of the employment of one registered teacher for every twenty-five pupils in the school, or by an increased grant in proportion to the number of registered teachers employed. There should be a pension scheme for all Irish registered teachers, contribution to which should be compulsory for laymen. Finally, the register should be under the control of a registration council representative of the Intermediate Board, the universities, the heads of schools, and assistant teachers.

ANOTHER subject engaging the attention of secondary-school teachers at the present time is that of insurance under the National Insurance Act. This was discussed from the women's point of view at a meeting of the Women's Branch of the Secondary Teachers' Association at the Alexandra College, Dublin. Miss Buchanan, in explaining the provisions of the Bill, stated that all women who were employees whose income was under £160 a year must insure under the Act, and were obliged either to join a provident society or invest in the Post Office. They should do the former, as they would then have all the advantages of a regular insurance society, while in the latter case they would only get the benefit of the money they put in. She strongly urged that women should join a women's society or one in which the funds were kept distinct for men and women. Miss Cunningham, on the other hand, after insisting that the points to be considered in joining a society were financial stability, the efficiency and fidelity of the officers, and the soundness of the lives of the members, urged that women should join a teachers' insurance society on the grounds of the advantage of belonging to a society where all members were of the same profession and risks were equal.

WELSH.

A FEW years ago Brymbo, in Denbighshire, became known as the place where the county authority refused to maintain the existing Church school. The county education authority opened a provided school in temporary premises, whilst the Church school managers continued their non-provided school. After a long struggle, to which the name, "The Brymbo School War," has been attached, their school was recognised by the authorities, and the county authority had to give the financial aid. The provided school was, however, still continued in several buildings, until the county authority arranged to build a new school, at a cost of more than £8,000. This new provided school for Brymbo has just been opened by Lady Osborne Morgan, and the vicar of Brymbo was present on the

occasion, a sign, it was suggested by the chairman of the county Education Committee, that the controversy was at an end.

It was stated that out of 29,000 children attending the Cardiff elementary schools, 3,700 children were necessitous. At the beginning of the year, the Cardiff Education Committee voted £1,000 under the Provision of Meals Act, but, of course, this sum was exceeded under the exigencies of the coal strike, and application was made to the Local Government Board for permission to levy the maximum halfpenny rate, which altogether brought up the money assigned to feeding to £2,300. In addition, the Lord Mayor of Cardiff's fund was partly used to relieve the distress of children. The suggestion was made that in Cardiff the schools should be opened during Easter week (with an increase in the length of holiday at Whitsuntide) so that, if necessary, provision of meals might be continued, since the Provision of Meals Act does not sanction expenditure on meals during the holidays. This course, however, would have meant a considerable inconvenience to some teachers, and it is doubtful whether it ought to have been taken without the acquiescence first obtained of the teachers.

THE question of developing musical education in Wales is attracting attention. It is well known that the University of Wales has established degrees in music, and that there are departments of music in the university colleges, which provide instruction in all the subjects of a musical degree. Prof. David Evans, of the University College of South Wales, Cardiff, has pointed out that the college has instituted a diploma in music, which is granted on the successful pursuance of an approved full-time course in harmony, counterpoint, musical form, sight-singing, and instrumental work at the college for a minimum period of two years, whilst Cardiff has under consideration also a scheme of University Extension Lectures and tutorial classes in music. Prof. Evans thus argues that a sound musical school may best be promoted by strengthening and developing the departments in existence already in the university colleges. On the other hand, other musical enthusiasts argue for a Welsh National School of Music, to be established *ad hoc*, and not "as an appendage" to the university colleges. It is urged that for a musical school, "the whole atmosphere should be musical," and should include provision for students of music, and also training for those who wished to become, not only students, but also teachers, of music.

At Newport, Monmouthshire, a school clinic has been established, and the Medical Inspector of Schools for Newport, Dr. Burpitt, reports to the Education Committee that it is progressing steadily. He states that the rooms are excellently adapted to their purpose, and with regard to his work of medical inspection, adds that a greatly extended use of the school medical department has been made. The standard of cleanliness has been considerably raised, and the percentage of verminous cases has remarkably decreased. The medical inspector deals with the question of the sand-pits at some of the infants' schools, and states that they get dry and collect dust,

which is disseminated by the children when at play. He urges that there may be no objection to children at the seaside playing with sand washed by the sea and blown by the free air, but in a room, from the hygienic point of view, it is certainly objectionable. He also points out the possibility of modelling clay serving as a means of conveyance of infection, and the danger involved in too small a distance between pegs on which children's clothes are placed (and between the tiers in which the pegs are arranged), both in increasing the possibilities of transference of infectious material and in diminishing the opportunity of drying.

In the recently issued Blue-book on Education it is stated that the number of bursars recognised in Welsh secondary schools has dropped from 353 in 1909-10, and 274 in 1910-11, to 194 for 1911-12. It is also stated that the number of pupil teachers now employed in Wales shows a decrease, and accordingly it is pointed out that the future supply of teachers is a problem which the local education authorities should face at once. The report further states that complaints are heard that the teachers educated in secondary schools do not know the subjects taught in elementary schools, such as geography, drawing, music, and the various kinds of manual work. Singing is stated to be well taught by the older generation of teachers, and to be more popular now than ever because of the introduction into the schools of Welsh airs and folksongs, but that it is a common complaint that the younger teachers often have no knowledge of the subject.

TWO CAMBRIDGE HISTORIES.

The Cambridge Mediaeval History. Vol. I. xxiii+754 pp. (Cambridge University Press.) 20s. net.

The Cambridge Modern History. Vol. xiii. Edited by A. W. Ward, G. W. Prothero, S. Leathes. 643 pp. (Cambridge University Press.) 16s. net.

THE University of Cambridge, having practically completed its history of modern Europe, has inaugurated a history of the Middle Ages. It has been planned by Prof. Bury, and is edited by Prof. Gwatkin and Mr. Whitney. The contributors are many, both English and foreign. This first volume consists of twenty-one chapters, averaging in length about thirty pages, an inclusive bibliography of eighty pages, an index of fifty-six pages, and fourteen maps, which are absolutely necessary to the understanding of the text. These are loose in a separate case, and thus can be easily kept in front of the reader for ready reference.

Such a work is obviously beyond the power of any one person to criticise. We must content ourselves with a brief indication of its contents. To give an adequate account would require a whole number of THE SCHOOL WORLD. The subject of the volume is announced on the title-page as "The Christian Roman Empire and the Foundation of the Teutonic Kingdoms." Nominally its dates are from the accession of Constantine, 323, to the eve of Justinian in 526, but some of the chapters take us back far beyond the earliest date here mentioned, into the dim beginnings of history among the Teutons and others.

The story of the Roman Empire is told in six chapters, three being devoted to the reigns of the emperors from Constantine to Theodosius I. inclusive, and then the story of Italy to the death of Theodoric

(526) is told in two chapters, and of the East to the death of Anastasius (518) in one. But these chapters are intercalated with monographs on special points. One describes the reorganisation of the empire under Diocletian and other emperors, and is a perfect gazetteer of Roman officialdom. Another is a special study, supplementary to the information on Julian in the main story, of his struggle against Christianity and its failure. Others are on Arianism, the Council of Nicæa, and the consequent struggle of theological parties, and (the longest in the book) on the organisation of the Christian Church in the first centuries of our era.

To the Teutons, their origins, their migrations, their conquest of Gaul, Spain and Africa, and their dominion in those parts, four chapters are devoted; one is given to Roman Britain and its conquest. Perhaps the most remarkable chapter in the volume is the long one entitled "The Asiatic Background." The author begins with a topographical description of Central Asia, and this leads to a detailed description of the nomads who lived there. The reader is wondering whether he is being guided and what connection this can have with the history of Rome, when he learns in the last few pages the effect of this condition on the neighbouring agricultural peoples, and there is evolved a theory as to the history of eastern Europe which is startlingly new. We have no space to indicate more, but must refer our readers to the chapter itself.

The last five chapters are given respectively to "religious disunion in the fifth century," to monasticism in east and west, to the social and economic conditions of the Roman Empire in the fourth century, to "thoughts and ideas of the period" (Augustine's *De Civitate Dei*, Neoplatonism, &c.), and to early Christian art.

For the general reader the volume is uneven. Some chapters are not intended for him, e.g., that on the early Teutons, as to which one of the contributors himself says, "the moving political forces, and even more the real conditions of life among the migrating Teutons, are wrapt in impenetrable darkness," and therefore their story often consists of disjointed statements, in which unfamiliar names are the most prominent feature; or those on the Arian and other theological conflicts, which are described by Mr. Stewart as a "thorny labyrinth." Others again are most readable, such as the first chapter, on Constantine, or that on the Asiatic nomads, to which we have already referred, and in which the reader will find an interesting solution of the problem as to the reason for the first domestication of animals. The monograph by Mr. Turner is a judicial statement of present opinion on the origin of episcopacy and allied institutions.

But as a whole the book is valuable as a standard work of reference, in which the editors have allowed full play to their various contributors, and in which therefore the careful reader will find some matters treated from more than one point of view. We have but one question to ask: Why are the bishops of Rome called popes so early? The explanation on p. 167 answers the question only partially.

The second book is supplementary to the great history which the University of Cambridge has been publishing for some years, and consists of 112 genealogical tables, thirty-three lists of spiritual princes, elected sovereigns, &c., and six lists of parliaments, general councils, &c., the latter including all English parliaments from 1485 to 1714, and universities founded since 1450. These lists are followed by 435 pages of index to the twelve volumes which precede.

It must have been a formidable task to compile this work of reference, and our thanks are due to those whose work is acknowledged in the preface. There are genealogies of families known to those who study only English history, as well as to those whose range is wider, so that the book is useful to the humblest student. For those whose reading is deep and wide, there are genealogies and lists of names utterly strange to the ordinary student. Considerations of space, which we regard as specially unfortunate in a work which will not be superseded in this generation, have limited some of the genealogies.

In the impossibility of criticising so extensive a book, we looked for two points of interest to the English student of European history. We found our friend the Bourbon regent of France who was displaced by Fleury, but when we turned to the genealogies of the House of Brunswick to enlighten us as to the tangle of "dukes" of that family that haunts the pages of the history devoted to the sixteenth and seventeenth centuries, encouraged thereto by the promise in the "preliminary remarks," we were disappointed. The line of Brunswick-Wolfenbüttel between Henry, a son of a duke who died in 1373, and Henry Julius of that house, who died in 1613, is represented only by short lines, and their cousins of Lüneburg are similarly omitted between Bernard of the fourteenth century, and Henry, who abdicated in 1521. But we would not end on a note of complaint. We would rather recommend to all who have the time and money to spend on it, the work of which this volume is a supplement, and to look forward to the volume of maps which is promised in the happy future.

THE TEACHING OF PLAY.

(1) *Children at Play*. By Rose M. Bradley. 316 pp. (Smith, Elder.) 6s. net.

(2) *Organised Games for the Playground*. By Robert S. Wood. xii+120 pp. Illustrated. (Macmillan.) 2s. 6d.

(3) *Organised Play at Home and Abroad*. Edited by R. E. Roper, with a Preface by the Bishop of Ripon. 120 pp. (National League for Physical Education.) 1s.

(4) *Organised Games*. Edited by Norman Chamberlain. 20 pp. (Birmingham: Cornish Bros.) 6d. net.

(5) *School and Country*. By R. K. Crawford. 86 pp. (Dublin: Hodges, Figgis.)

(6) *Badminton*. By S. M. Massey. 156 pp. Illustrated. (Bell.) 2s. net.

MISS BRADLEY'S sketches (1), reprinted, with two exceptions, from *The Nineteenth Century and After*, are very welcome in book form. Two of the ten sketches are devoted to London children at play, one depicts the children of Florence, another the children of Siena; there is a charming picture of life in a Paris convent; while five other sketches are records of foreign travel fitting very loosely the title of the book. Miss Bradley is evidently as shrewd an observer as she is graceful a writer. She has a happy way of hitting off the characteristics of the children of different cities and countries. Thus she speaks of the Florentine child: "It is rare to meet an absolutely plain child in Florence, but it is not only the dark, eloquent eyes, the clear-cut features, the clean line of throat and chin, the graceful proportions of the small limbs to the body, but it is also a certain air of distinction and aloofness in their bearing which makes it a pure pleasure to watch these children at

their play." Miss Bradley's descriptive accounts of country folk, country inns, churches, adventurous journeys, and especially of children, are always admirable and always interesting. The best wine is saved to the last, for no part of the book is fresher or more informing than the final chapter, "On the Road to Corsica," and the wild grandeur of Corsican scenery is strangely blended in our memory with Corsica's dark wooden staircases where "the stairs are never cleaned, never!"

In his book on "Organised Games" (2) Mr. Wood has dealt in a clear and effective manner with a large number of games which he has found to be popular among children of from seven to fourteen. The various games are grouped under free-running games, circular-running games, team contests, sides, ball games, rope games, and miscellaneous. The photographic illustrations and diagrams assist materially the letterpress, while the type and paper leave nothing to be desired. There are games for girls as well as boys.

All who would know what is being done, both at home and abroad, for the physical development of school children should get Mr. Roper's shilling pamphlet (3). Besides an admirable survey of the work of various national societies, of experiments in London and the provinces, an excellent account is given of foreign experiments, in Austria, France, Germany, Sweden, Switzerland, and the United States. The Bishop of Ripon in a preface sounds a useful note of warning against teaching games until they degenerate into tasks.

Mr. Norman Chamberlain's pamphlet (4) shows what has been done in Birmingham to teach children in the open spaces of the city how to play. Seven such spaces were allocated to as many organisers, who, with voluntary helpers, went one evening a week for the three months, June, July, August, provided with the various apparatus for games. The experiment is regarded as having been quite successful. An improvement in manners and in unselfishness in play was noted. (To get their own back seems the first instinctive impulse of many of the rougher players.) Working girls and youths were led to take an interest in the games of the children. But May to July is recommended as the best time for future experiments.

Mr. Crawford's "School and Country" (5) is racily written, and is obviously the work of an intense enthusiast. It is a book to be read by those eager to develop a love of manly play. Mr. Crawford's chapter on "The Keen House" is enough to inspire the most lethargic house or "nation" with a belief in its own powers, and to start it forth on a course of training to acquire "bulldog keenness."

Mr. Massey claims that no text-book has hitherto been written on "Badminton." His exposition of the game (6) is clear and forceful. As thrice All-England Champion, he writes with authority on men's doubles. Mr. G. A. Thomas writes on men's singles, also on mixed doubles; Mrs. M. Tragett writes on ladies' singles; and Miss L. C. Radeglia on ladies' doubles. An appendix gives the rules, laws, and records of Badminton. The book is admirably printed and illustrated on good paper.

Heroes of the Middle Ages. By E. M. Tappan. 252 pp. (Harrap.) 3s. 6d. net.—A pleasantly written book about mediæval history, mainly in the form of biographies, such as those of Alaric, "Charlemagne," Richard I., Columbus, &c., with chapters on town and country life, &c. There are many pictorial illustrations, some of them full-page reproductions of famous pictures, and others of varying merit.

RECENT SCHOOL BOOKS AND APPARATUS.

Classics.

Allman's Classics, with Notes for Teachers and Scholars. Cæsar, B.G. Books I., II., III., IV., V., VI. Virgil Æneid. Books I., II., III., IV., V., VI. (Allman.) 2d. each, or 1s. 6d. a dozen net.—We are glad to direct attention to these cheap texts, which may help to keep Latin alive in so-called modern schools. We will first say what these books are, then suggest what they might be. Each has one page of "argument," text, and English footnotes, four or five to the page. The notes contain bits of translation and explanations of allusions or proper names. The print is large enough, but the margins are not, and the effect, therefore, is trying to the eye. Whilst it seems to us that many of the notes are unnecessary, yet many give exactly what is wanted (as "Æn." i., 233) in a line or so. It is clear that the books meet the want of a large number of schools, and those who may not agree with what we are going to add will be content.

But the question of print and margin is really serious in all school books, and few realise how badly children's eyes are now strained. We unhesitatingly reject all books that are not easy to read—which depends not only on print, but on spacing, length of line, and width of margin—however useful they may be otherwise. Secondly, the most competent teachers recognise now that a foreign language is best taught through and by itself. If this be so, the notes ought to be in Latin, and the translations left out. We cannot, therefore, recommend them to reformers.

Mirabilia: a Short Collection of Modern Stories in Latin. By C. D. Olive. viii+118 pp. With or without vocabulary. (Arnold.) 1s. 6d.—This book was suggested by Mr. T. W. Dunn, one of the few schoolmasters of the last generation who showed any imagination. The stories are fairy tales, "Bruce and the Spider," "George Washington's Cherry-tree," "The Wreck of the Birkenhead," "The Light Brigade," "Paul and Virginia," "Bees" (not after Maeterlinck), and others—these titles indicate what the others are like. They are told in simple Latin and a lively style. We can cordially recommend this book, and wish it the success it deserves.

Easy Latin Plays. By M. L. Newman. 34 pp. (Bell.) 6d.—These scenes are very short and very simple; each has its vocabulary. Long vowels are marked. They were made for use in the first and second years, but it is not clear whether they fit in with a definite plan of instruction; they may be made useful with any plan. They are worth attention. A little revision is needed; thus we have *Tiberius, nuper, rure* (long unmarked), and the answer to "Estne haec Numitoris domus?" is not "Numitoris est domus," but "Est."

Novum Testamentum Latine secundum editionem S. Hieronymi ad cod. MSS. fidem rescensuerunt Iohannes Wordsworth, S.T.P., et Henricus White, S.T.P. Ed. minor curante H. White. xx+620 pp. (Clarendon Press.) 2s. net.—This handy book has textual notes and references in margin, and a short introduction, which includes synoptic tables. The work has already been before the world some years in the larger edition, and it needs no criticism here. This cheap edition is most welcome.

Tacitus: Roman Conquest of Britain. By W. Modlen. xxvi+112 pp. (Macmillan's Elementary Classics.) Illustrated. (Macmillan.) 1s. 6d.—Those

who like an elementary book in which every difficulty is forestalled and explained, with running English analysis, introduction, notes (40 pp.), and vocabulary, have here what they like. To our mind the plan spoils the book, and the more fully it is executed the less we like the book; for those who think otherwise we may say that the plan is well carried out by Mr. Modlen. The introduction, notes, and illustrations would be excellent if the master had them to produce when wanted. As for the vocabulary, a "fourth-form boy," it seems, must be told that *et* means "and," *ego* "I," and so forth (30 pp.) We should like to see the vocabulary confined to those words which the third-form boy had not learnt. Does that suggest a new and fruitful line of thought for editor or publisher?

Norma Elegiaca: a Standard for the Writing of Ovidian Elegiacs. Selected by R. L. A. du Pontet. 27 pp. (Clarendon Press.) 1s. net.—This book would do well to be learnt by heart; as a reader, it is too short. The pieces are all worth learning.

The Year's Work in Classical Studies, 1911. Edited by L. Whibley. xiv+204 pp. (Murray.) 2s. 6d. net.—This book needs no recommendation; it is the only one in English that gives an idea of all the work being done in the classical field, or rather fields—at least, nearly all, for the section on pedagogy has disappeared. Yet this field is in a sense the most important, for this is the nursery for the plants that ought to bear fruit in the other fields. There is an additional paper on Greek palæography and textual criticism, and some space has been saved by abbreviating the titles of periodicals cited, in accordance with a list given at the beginning.

It is impossible to pick out the plums of this book; there is nothing so sensational as the new Menander, but many of the papers contain items of real importance. The reader may be assured that he will get good change for half a crown, even if he is not sensible enough to join the Classical Association and get the book for nothing.

English.

(1) *Boy and Girl Heroes.* 39 pp. *Children of History.* 43 pp. (Charles and Dible.) 2½d. each.

(2) *The Seven Champions of Christendom.* By A. R. Matthews. 161 pp. (Ginn.) 2s.

(3) *The Heroes.* 157 pp. (Blackie.) 1s. (illustrated in colours).

(4) *The Children's Library.* By W. C. Berwick Sayers. 224 pp. (Routledge.) 2s. 6d.

A FEW children's books are noticed because they seem new in idea or execution. Messrs. Charles and Dible issue "Boy and Girl Heroes" and "Children of History" (1). These may be the beginnings of much bigger works; the works are needed. There is a mass of children's heroism and of children's historic deeds unnoticed, and as children are eager to know if stories are true; it seems a pity that Gorgo and Cleobis and Biton and Mamilius and Joan of Arc should not be remembered in the schools. At the present moment we cannot recall any book containing a couple of hundred short narratives of heroic children. Of legendary people whose actions are interesting to children, Miss Matthews writes in the "Seven Champions of Christendom" (2). The foreword is excellent, the stories are well told, and the dedication is worth quoting, "To our Girls and Boys, Knights and Ladies of the time to come, I give this book of tales." That is the right note to strike. Among many editions of Kingsley's heroes surely one of the most delightful is Messrs. Blackie's (3); the

illustrations are what we expect from this firm, the text is very clear, the binding good, and the price is within almost anyone's reach. As a rule, a much-edited book escapes comment; this should be an exception. In regard to children's libraries (4) we have not much literature, but the Croydon librarian sends a manual on their management, formation, and rules, on reading circles and pictures, and adds a bibliography. The book is full of suggestions, and if only we grant that children's libraries or children's sections of libraries are desirable, this book is to persons engaged in the work indispensable. No mention is made of Mrs. Clement Parsons's list or of Mrs. Bryant's stories, and the compiler, who rightly complains of prices not being mentioned, mentions none himself in his bibliography. This is the only serious omission. But Mr. Sayers must not expect much to be done for children. Very few libraries for adults are worthy of the name, and inquiry for any book off the beaten track is hopeless. We are not a book-buying people.

(1) *Pope's The Iliad.* Edited by C. E. Rhodes. 641 pp. *The Odyssey.* Edited by E. S. Shumway and W. Shumway. 476 pp. *Out of the Northland.* By E. K. Baker. 164 pp. *The Sketchbook.* By Washington Irving. 371 pp. (Macmillan.) 1s. each, cloth.

(2) *The History of England from the Earliest Times to the Death of King Edward VII.* By A. J. Williams and S. A. Walker. 599 pp. (Melrose.)

THREE volumes of the well-known Pocket Series of English Classics (1) are Pope's "Odyssey" and "Iliad" and Baker's "Out of the Northland." The series is very handy, not bulky, and it is clearly printed and well introduced. The old question of Homeric translation always raises its head when Pope is mentioned, but these works belong as much to Pope as Lamb's "Tales" and "Omar" belong to Lamb and Fitzgerald. Perhaps this argues against the excellence of the "translations"; but, as everyone knows, Homer has not been translated for the twentieth century. The "Out of the Northland" is a re-statement of Scandinavian mythology for children, and "The Sketchbook" is particularly welcome. Indeed, this is an instance of an American classic *Anglior quam Angli*. It would be impossible to find anything not intensely English in the English sections, and the famous Christmas to which Caldecott added his contribution of glory has been known, notwithstanding its difficulties, to be the favourite reading book of boys of twelve. Hawthorne and Irving, like Longfellow and Horace's Corinth, are "bimares."

Another series of reprints has been often noticed in these pages. It is a shilling series in red cloth, and to it are now added Emerson's "Essays," Arnold's "Essays in Criticism" (1st series), Huxley's "Man's Place in Nature" (illustrated), Morley's "Life of Gladstone" (3 vols.), Lord Selborne's famous defence of the Church of England against Disestablishment, and, an old friend of childhood, Baker's "Cast up by the Sea." The series, well printed and serviceably bound, is becoming a library of well-known books. Messrs. Macmillan are the publishers.

A fresh attempt, assuredly not intended to be the last, to write a good school history comes in the History of England (2) to the death of King Edward VII. It aims at giving more room to movements and policy than to wars and battles; but it does not expand until the fourteenth century is past. Maps and plans are added. The text is interestingly written; though not full enough to be a reading book, the volume is suggestive, and, in the hands of a good teacher, will provide and answer questions.

The English Journal, January, 1912. (Chicago: University of Chicago Press.)—We have here the first number of the official organ of the National Council of Teachers of English in the United States. It is a "live" number indeed, and serves to remind us that English is taught in the States with the seriousness it deserves. The four chief articles are entitled "Composition Teaching under Present Conditions," "The Aim of the English Course," "The School and Current Fiction"—which we have found extremely interesting—and "Financial Support of English Teaching." Teachers of English in this country will find the periodical most stimulating. The English agents are the Cambridge University Press.

Nineteenth Century Essays. Edited by George Sampson. xi + 227 pp. (Cambridge University Press.) 2s.—Mr. Sampson is to be congratulated on a very sensible preface and an interesting collection of essays. He boldly and, as we think, successfully, defends the annotations he here offers the student, but his success depends upon the nature of the particular student he has in view and the nature of the annotations. The particular student is the candidate for the Board of Education's Preliminary examination for the teacher's certificate, and the annotations are singularly well adapted to stimulate his interest. We thoroughly recommend Mr. Sampson's book for the type of student to whom he refers.

Sentences and their Elements. By S. C. Earle, H. J. Savage, and F. E. Seavey. xxi + 164 pp. (New York: The Macmillan Company.) 3s. 6d. net.—This book is meant to remedy for American college students a defect in their elementary training in English, which, according to the authors, is a deplorably common weakness among them. They lack the necessary foundation of elementary knowledge; and no wonder if, as is here stated, the text-books used in preparatory schools give dogmatically "rules of good use." But, as the authors complacently remark, "the student in college, who should think as well as remember and obey, needs a somewhat different treatment." In a sense this book is meant to serve as a convenient means of revision; but we are inclined to think that the elaboration expended, say, on tense is excessive for any but the student who intends to specialise in English. We find nothing in the book to justify us in recommending it to English teachers—which is not to say that it may not be excellently adapted to the conditions prevalent in America.

Mathematics.

Junior Mathematics. By D. B. Mair. viii + 200 pp. (Clarendon Press.) 2s.—The book is described on the title-page as a course of geometry and algebra for beginners, and the author claims that the pupil who seeks from mathematics nothing more than its contribution towards a general education will find in it the minimum mathematical equipment which can entitle him to be called educated. It may at once be granted that the course provides an excellent grounding in geometry. The methods adopted are chiefly experimental and inductive, but some easy cases of deduction are also included. The writer is careful to guard the learner from supposing that measurements of carefully drawn diagrams are really capable of proving a theorem. It is pointed out that the angle-sum theorem or some equivalent one is incapable of proof, and must be taken as a fundamental assumption. The manner of dealing with these and similar points is in refreshing contrast to the slipshod treatment accorded to them in the majority of similar books. Compared with the geometry, the amount of

algebra taught is exceedingly meagre, for it hardly goes beyond the use of letters for numbers and the method of expanding the product of sums. The notation for indices is mentioned, but not used, as liable to lead to confusion, and we cannot find any equations except those of the form $ax=b$.

A New Algebra. By S. Barnard and J. M. Child. Vol. ii., Parts iv.-vi. x + 431 pp. (Macmillan.) 4s.—The second volume of Barnard and Child's algebra maintains in every respect the high standard of the first volume. The aim of the authors has been to produce a work which, while suitable for school use, shall not slur over or ignore the difficulties of the subject. The method of treatment of the various topics has been determined by the class of pupil for whom the book is primarily intended, namely, the boy who requires a good working knowledge of algebra, but does not intend to specialise in mathematics. The third volume will contain the parts of the subject which are required by the specialists. In this second volume, then, we are taken from irrationals up to the binomial, exponential, and logarithmic series, and in addition there are chapters on such matters as partial fractions, summation of series, theory of equations, variation of simple functions, limits, derivatives and tangents, and infinite series. What strikes us most is the careful manner in which the way is prepared for the introduction of each new piece of theory. For example, irrationals are led up to by a study of approximation, and, in like manner, limits are discussed after the values of a polynomial for small and large values of the independent variable have been considered. The general impression left on the mind is that of an able and conscientious piece of work. Each paragraph bears the mark of thought and discriminating judgment, and the result is a book which sets a standard of what a school algebra ought to be.

Elementary Integrals. A Short Table. By T. J. I'a Bromwich. 38 pp. (Bowes and Bowes.) 1s. net.—This compilation will be found useful not only by persons who require such a table for reference, but also by students learning the subject. The integrals are classified, so that the form desired can be found without loss of time. Excepting in the more simple cases, the results of the integration are not stated, but the transformations necessary to reduce the integral to a standard form are given. The only definite integrals included are those in which the result is obtained by substituting the limits in the result of the indefinite integration, so that the student will have to seek elsewhere information regarding the Eulerian integrals and those which require special methods for their evaluation. The two last sections contain Simpson's formulæ and planimetric formulæ.

A School Geometry. By H. H. Champion and J. C. C. Lane. viii + 292 pp. (Rivingtons.) 3s. 6d.—Amongst the numerous new geometries which have been issued in recent years, this one seems to have as good a chance of a successful career as any. Other things being equal, appearances count for much, and we are favourably impressed at the outset by the good type, well spaced, and the concise and clear way of exhibiting the successive steps in the propositions. Moreover, the bad practice of printing the exercises in a smaller, crowded type has not been followed. There is no preliminary course of practical work, but the teacher will find no lack of exercises suitable for such a course attached to the set of constructional propositions near the end of the first book. In the matter of sequence the authors have followed a line of their own, but we are glad to see that references

to previous propositions by their numbers have been omitted. It is unreasonable to expect boys to burden their memories with the numbers assigned to the propositions in a particular text-book, although our experience of the work done in examinations shows that some teachers require them to do so. The treatment of the theorems relating to rectangles contained by segments of a line is rather hurried, and in dealing with ratio, commensurables only are considered. These, however, are minor points, and on the whole the book is one which should produce quite satisfactory results.

Science and Technology.

The Great Star Map. By Prof. H. H. Turner. viii+159 pp. (Murray.) 2s. 6d. net.—As an antidote to the provocation of strife between nations by some sections of the periodical Press, it is comforting to read this account of the inception and development of the international project for securing a photographic chart of the heavens and constructing a catalogue of the measured places of stars recorded upon the sensitive plates. The general plan of work was decided at an international conference held at Paris in 1887. Eighteen observatories in various parts of the world undertook the photography of particular parts of the celestial sphere upon a uniform plan. Each uses a telescope $13\frac{1}{2}$ in. in diameter, and focal length about $11\frac{1}{4}$ feet, by which one minute of arc is represented by a millimetre upon the photographic plate. Different series of exposures are made extending from twenty seconds to forty minutes, the short-exposure plates being used for measurements of stellar positions, while the long-exposures are for reproduction as photographic charts of the heavens. Prof. Turner describes the progress of this great enterprise and its present position. Many unlooked-for difficulties and problems have arisen in the course of the work, and every year gives the photographs additional value. Among the incidental subjects for which the plates have provided material for discussion are the extinction of light by passage through billions of miles of space, the existence of star-drifts, and the determination of the distance of the sun from photographs of the minor planet Eros. Prof. Turner has been concerned with the share of the work assigned to Oxford almost from the beginning, and he writes with intimate knowledge as well as literary ease upon the whole scheme. We can conceive no more inspiring statement for the student of celestial science than that which he provides in this volume.

The Colloidal and Crystalloidal State of Matter. By Paul Rohland. Translated by W. J. Britland and H. E. Potts. 54 pp. (Constable.) 4s. net.—The important part played by colloids, alike in vital processes and in technical operations, is now fully recognised, and Dr. Rohland's book is an attempt to summarise the present state of knowledge on the subject. One doubts, however, whether the general reader will derive much profit from the perusal of the volume. He is hurried from one topic to another, and is presented with a good deal of matter that can scarcely be called essential, whilst some extremely important points, such as the introduction and application of the ultra-microscope, are quite inadequately discussed. The translation is unsatisfactory.

Inorganic Chemistry. By S. W. Burnell and A. J. Dicks. 372 pp. (Ralph Holland.) 3s. 6d.—This compact volume is intended mainly for secondary schools, and is more or less on conventional lines. Practical work is interwoven with the descriptive

matter, and experiments are proposed in connection with all the more common substances, so that the student may himself become acquainted with their properties. While the information given is, on the whole, up to date, it may be noted that Brin's process is the only method mentioned for the production of oxygen on a large scale, and that there is a mere reference to the determination of the molecular weight of dissolved substances. In general, however, the treatment of the subject is sound and practical.

A School Chemistry. By F. R. L. Wilson and G. W. Hedley. 572 pp. (Clarendon Press.) 4s. 6d.—This volume provides a somewhat shorter course than that given in the authors' "Elementary Chemistry: Progressive Lessons in Experiment and Theory." The general method of treatment is the same as in the earlier work.

Organic Chemistry. By W. H. Perkin and F. S. Kipping. 664 pp. (Chambers.)—A thorough revision of this well-known text-book has been undertaken. While the general plan remains the same as in earlier editions, the whole of the subject matter has been brought up to date, and various alterations in arrangement have been introduced.

Practical Chemistry. By G. B. Neave and J. W. Agnew. 96 pp. (Blackie.) 2s.—The course proposed in this little volume is suitable for beginners, before any systematic work in qualitative and quantitative analysis is undertaken. The experiments suggested deal mainly with the preparation and properties of common substances, such as oxygen, hydrogen, water, ammonia, carbon dioxide, hydrochloric acid, chlorine, sulphur, and sulphuric acid, but a few are of a simple quantitative character. The book should be found useful as an introduction to the practical side of chemistry.

The Changeful Earth. By Prof. Grenville A. J. Cole. x+223 pp. (Macmillan.) 1s. 6d.—"To present natural phenomena and laws broadly and attractively" is one of the avowed objects of the series (Readable Books in Natural Knowledge) to which this little volume belongs. Prof. Cole has realised this object with conspicuous success. In the early part of the book he shows, with delightful biographical details of the work of William Smith, Lyell, Deshayes, and other pioneers, how modern geology emerged from the crude ideas of pre-scientific times. In later chapters, dealing with the action of running water, glaciers, volcanoes and earthquakes, and the making of mountains, some of the more interesting results of recent work are described in language at the same time simple and full of literary charm. The book contains a large number of illustrations, many being from photographs taken by the author. We can imagine nothing better adapted to arouse a serious interest in geological questions generally, while for supplementary reading for students of geography the book will be invaluable.

Lessons on Soil. By Dr. E. J. Russell. xvi+132 pp. (Cambridge University Press.) 1s. 6d.—Teachers who have hitherto restricted their nature-study courses to work on plants and animals should be encouraged by this book to extend the scope of their lessons. Others, who have already learnt something of the educational possibilities in the fundamentals of agriculture, will, to a scarcely less extent, find helpful guidance in these results of Dr. Russell's experience alike as a teacher and as an investigator at Rothamsted. The course of work set out—intended for

scholars from twelve to fourteen years of age—is essentially practical, and includes simple experiments on the physical and chemical properties of clay, sand, limestone, and humus, and on the effects of these on the successful growth of crops. The book is written in a most interesting style, and is well illustrated. It deserves a wide circulation.

EDUCATIONAL BOOKS PUBLISHED DURING MARCH, 1912.

(Compiled from information provided by the
Publishers.)

Modern Languages.

"Lectures et Exercices—Cours Supérieur." Edited by F. M. S. Batchelor. vi+142 pp. (Black.) 2s.
"Le Livre Rouge." A First Book of French in Coloured Pictures. By E. Magee. 96 pp. (Blackie.) 1s. 6d.

"Blancheneige et Rougerose." Pièce en Trois Tableaux. Avec Transcription Phonétique et Partition. With music. By Denise Mion. 48 pp. (Blackie.) 8d.

Schiller, "Don Carlos." (Oxford German Series.) Edited by F. W. C. Lieder. lxxx+585 pp. (Oxford University Press.) 5s. net.

Classics.

"A Short Syntax of New Testament Greek." By the Rev. H. P. V. Nunn. 140 pp. (Cambridge University Press.) 2s. 6d.

"A First Year Latin Book." By John Thompson. 228 pp. (Cambridge University Press.) 2s.

"Caesar in Britain and Belgium, Simplified Text." By J. H. Sleeman. xxx+124 pp. (Cambridge University Press.) 1s. 6d.

"An English-Greek Lexicon." By G. M. Edwards. xxxii+332 pp. (Cambridge University Press.) 7s. 6d. net.

English: Grammar, Composition, Literature.

"The Coming Generation." By W. E. Forbush. (Appleton.) 6s. net.

"The Model Classbooks of English." By F. W. Chambers and A. J. Ker. A Complete Preliminary Course in Composition, Word-building, Phrase-making, Spelling, Grammar, and Analysis. Book IV., Scholars. 64 pp. 4d. Book IV., Teachers. 96 pp. 1s. (Blackie.)

Mungo Park, "Travels in the Interior of Africa." Edited by Dr. W. H. D. Rouse. (Blackie's English Texts.) 128 pp. (Blackie.) 6d.

"Cambridge History of English Literature." Vol. viii. "The Age of Dryden." By A. W. Ward and A. R. Waller. 516 pp. (Cambridge University Press.) 9s. net.

Chambers's Standard Authors—(1) "The Lifeboat." 266 pp. (2) "The Lighthouse." 302 pp. By R. M. Ballantyne. (Chambers.) Limp cloth, 8d. net; cloth boards, 1s.

Chambers's Brief Biographies of the Good and Great—"Isabella Bird (Mrs. Bishop), the Famous Traveller." By Reginald Horsley. 72 pp. (Chambers.) Paper 3d., cloth 4d.

"Women of Worth in the Victorian Era, being Brief Biographies of Queen Victoria, Florence Nightingale, and Isabella Bird." By Reginald Horsley. 240 pp. (Chambers.) Cloth boards 1s.

"English Literature of the Nineteenth Century." By A. J. Wyatt and H. Clay. 185 pp. (Clive.) 2s.

Tennyson, "Enoch Arden." By F. Allen. 62 pp. (Clive.) 1s.

"A Register of National Bibliography." Vol. iii. By W. P. Courtney. (Constable.) 15s. net.

"Harrap's Dramatic History Reader." I. By F. E. Melton. 125 pp. (Harrap.) 6d.

"A Treasury of Prose and Poetry." Selected by Amy Barter. II. 96 pp. 5d. III. 94 pp. 5d. (Harrap.)

Shakespeare's "King John." Edited by C. W. Crook. 160 pp. (Ralph, Holland.) 2s.

"Examples and Exercises in English for Foreign Students." By Wilfrid C. Thorley. 68 pp. (Macmillan.) 9d.

The Children's Classics—Primary: No. 4, "Tales from Norseland." 32 pp. 2d. No. 5, "Tales from Norseland," II. 32 pp. 2d. No. 6, "Donkey-Skin," By Charles Perrault. 32 pp. 2d. Junior: No. 16, "The Dwarf's Spectacles and other Fairy Tales." By Max Nordau. 48 pp. 2½d. No. 17, "Little Wanderlin and Little Silver Ear." By A. and E. Keary. 48 pp. 2½d. No. 18, "The Magic Valley" (Abridged). By E. Keary. 48 pp. 2½d. Intermediate I.: No. 28, "The Last of the Giant-Killers" (Abridged). By J. C. Atkinson. 64 pp. 3d. No. 29, "Four Winds Farm" (Abridged). By Mrs. Molesworth. 64 pp. 3d. No. 30, "The House that Grew" (Abridged). By Mrs. Molesworth. 64 pp. 3d. Paper covers. (Macmillan.)

The Tudor Shakespeare: "A Midsummer Night's Dream." Edited by J. W. Cunliffe. 130 pp. 1s. "Henry the Eighth." Edited by C. G. Dunlap. 188 pp. 1s. net. (Macmillan.)

"Selected Poems." (Pocket Series of English Classics.) Edited by H. W. Boynton. 374 pp. (Macmillan.) 1s. net.

"Peter Pan: a Reader for Junior Classes." By G. D. Drennan. Introduction by A. R. Pickles. 64 pp. (Mills and Boon.) 6d.

"Rural England." By H. Harbour. 210 pp. (Pitman.) 1s. 6d.

History.

"An Outline History of the British Empire from 1500-1911." By W. Harrison Woodward. 242 pp. (Cambridge University Press.) 1s. 6d.

"Dramatised History." Book IV. (Stuart Period). By Mrs. Basil Gothorp. 64 pp. (Cassell.) 4d. net.

"War Pictures from Clarendon." By R. J. Mackenzie. 276 pp. (Clarendon Press.) 2s. 6d. net.

"The Making of London." By Sir Laurence Gomme. 255 pp. (Clarendon Press.) 3s. 6d. net.

"The Struggle with the Crown (1603-1715)." By E. M. Wilmot-Buxton. 224 pp. (Harrap.) 1s. 6d.

"Heroes of the Middle Ages (Alaric and Columbus)." By Eva Marcl Tappan. 252 pp. (Harrap.) 1s. 6d.

"The Story of the Crusades." By E. M. Wilmot-Buxton. 286 pp. (Harrap.) 1s. 6d.

"Problems and Exercises in British History." Book D. "The Second Anglo-French Struggle, 1688-1837." By J. S. Lindsey. 112 pp. (Heffer.) 4s. 6d.; interleaved, 5s.

"The Industrial Revolution." By G. Collar. 150 pp. (Pitman.) 1s. net.

Geography.

"The Children's World." By S. Shenessey. 64 pp. (Black.) 1s. 6d.

Black's Geographical Pictures. Series III. "Sculpture of the Earth's Crust." In two packets of six pictures each. Edited by Sophie M. Nicholls. (Black.) 6d. per packet.

"Cambridge Geographical Text-books. Intermediate." By A. J. Dicks. 362 pp. (Cambridge University Press.) 3s.

"Physical Geography for South African Schools." By Alex. L. Du Toit. 250 pp. (Cambridge University Press.) 4s. 6d. net.

Cambridge County Geographies: "Oxfordshire." By P. H. Ditchfield. 218 pp. "Breconshire." By C. J. Evans. 172 pp. "West London." By G. F. Bosworth. 268 pp. (Cambridge University Press.) 1s. 6d. each.

"The Junior Scientific Geography of the Monsoon Region of Asia." By E. W. Heaton. 79 pp. (Ralph, Holland.) 10d. net.

"Europe: a Supplementary Geography." By J. F. and A. H. Chamberlain. 268 pp. (Macmillan.) 3s.

Mathematics.

"An Elementary Treatise on Statics." By S. L. Loney. 394 pp. (Cambridge University Press.) 12s.

"A Shorter Geometry." By C. Godfrey and A. W. Siddons. In four parts. Part I., First and Second Stages, Geometry for Beginners. 1s. Part II., Third Stage, Books I. and II. 10d. Part III., Third Stage, Book III., The Circle. 10d. Part IV., Third Stage, Book IV., Similarity. 10d. Notes and Answers to Exercises in "A Shorter Geometry." 16 pp. 6d. (Cambridge University Press.)

"The Elements of Hydrostatics, with numerous Examples." By G. W. Parker. (Longmans.) 2s. 6d.

"McDougall's Girls' Suggestive Arithmetical Tests." Fourth Year, Fifth Year, Sixth and Seventh Years. 36 pp. in each book. (McDougall.) Paper, 1½d. net; cloth, 2½d. net.

"Mathematical Papers for Admission into the Royal Military Academy and the Royal Military College for the Years 1905-1911." Edited by R. M. Milne. 336 pp. (Macmillan.) 6s.

"Macmillan's Reform Arithmetic." Teachers' Book VI. By P. Wilkinson and F. W. Cook. 128 pp. (Macmillan.) 1s.

"The Rational Arithmetic for Rural Schools." By George Ricks. Scholar's Book, First Year's Course. 48 pp. 3d. Scholar's Book, Second Year's Course. 48 pp. 3d. Teacher's Book, First Year's Course. 68 pp. 8d. Teacher's Book, Second Year's Course. 72 pp. 8d. Teacher's Book, Sixth Year's Course. 76 pp. 8d. (Macmillan.)

Science and Technology.

"Junior Heat." By Dr. J. Satterly. 192 pp. (Clive.) 2s.

"Outlines of Evolutionary Biology." By Prof. Arthur Dendy. (Constable.) 12s. 6d. net.

"The Chemistry of the Rubber Industry." (Outlines of Industrial Chemistry Series.) By H. E. Potts. (Constable.) 5s. net.

"The Energy-Diagram for Gas." By F. W. Burstall. (Constable.) 5s. net. Diagram separately, 2s. net.

"Cast Iron in the Light of Recent Research." By W. H. Hatfield. xiii+249 pp. + frontispiece and 164 illustrations. (Griffin.) 10s. 6d. net.

"Methods of Air Analysis." By Dr. J. J. Haldane. x+130 pp. + 24 illustrations. (Griffin.) 5s. net.

"A Digest of Gide's Principles of Political Economy." By H. M. Desai. 224 pp. (Harrap.) 2s. 6d. net.

"Manual Training (Woodwork) for South African Schools." By F. T. Morrison. Third Year Course. (Longmans.) 1s.

"Simple Economics for Indian Schools and Colleges." By J. R. Cornah. (Longmans.) 2s.

"Elementary Plant Biology." By J. E. Peabody and A. E. Hunt. 228 pp. (Macmillan.) 4s.

"Storage Batteries: the Chemistry and Physics of the Lead Accumulator." By H. W. Morse. 272 pp. (Macmillan.) 6s. 6d. net.

Pedagogy.

"Character Training." By Ella Lyman Cabot and Edward Eyles. 384 pp. (Harrap.) 2s. 6d. net.

"All the Children of all the People: a Study of the Attempt to Educate Everybody." By W. H. Smith. 356 pp. (Macmillan.) 6s. 6d. net.

"The Century and the School and other Educational Essays." By F. L. Soldan. 214 pp. (Macmillan.) 5s. 6d. net.

Miscellaneous.

"Gardens in their Seasons." By C. von Wyss. 64 pp. (Black.) 1s. 6d.

"Rambles in the Park." Illustrated in colour and in black-and-white. (The Rambler Nature Books.) By W. J. Claxton. 96 pp. (Blackie.) 9d.

"Thousand and One Cookery Recipes." 152 pp. (Cassell.) 6d. and 1s. net.

"Healthy Habits and How to Train Them." 100 pp. (Cassell.) 1s. net.

"Dairying." By J. Prince Sheldon. 466 pp. (Cassell.) 7s. 6d. net.

"Success for Boys." By A. M. Apel. 75 pp. (Cassell.) 6d. net.

"Biblical History for Junior Forms: Old Testament." By F. J. Foakes-Jackson. 228 pp. (Heffer.) 2s. 6d.

"The Life and Teaching of Jesus: Daily Gospel Readings for Young Children." Arranged by Edith E. Read Mumford. (Longmans.) 1s. 6d. net.

"Patriarchs and Prophets: Old Testament Stories in Modern English." By James Smith. 174 pp. (Macmillan.) 6d. net.

"Paper-cutting and Modelling for Infants and Juniors." By J. Tolson. 174 pp. (Pitman.) 2s. 6d. net.

"Notes of Lessons on Music." I.—Sol-Fa Edition. By E. Mason. 182 pp. (Pitman.) 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.

Circular Permutations.

REFERRING to Mr. R. Wyke Bayliss's letter in your April issue, the following formula gives the number of circular permutations of $p+q+r \dots$ things, where p, q, \dots contain the common prime factors a, b, \dots , each of which may occur raised to any power.

$$\text{Let } F(p, q) = \frac{p+q+\dots-1}{|p| |q| \dots}$$

then the required number N

$$\begin{aligned} = & F(p, q) + \left(1 - \frac{1}{a}\right) \left\{ F\left(\frac{p}{a}, \frac{q}{a}\right) + F\left(\frac{p}{a^2}, \frac{q}{a^2}\right) + \dots \right\} \\ & + \left(1 - \frac{1}{b}\right) \left\{ F\left(\frac{p}{b}, \frac{q}{b}\right) + F\left(\frac{p}{b^2}, \frac{q}{b^2}\right) + \dots \right\} \\ & + \left(1 - \frac{1}{a}\right) \left(1 - \frac{1}{b}\right) \left\{ F\left(\frac{p}{ab}, \frac{q}{ab}\right) + F\left(\frac{p}{a^2b}, \frac{q}{a^2b}\right) + \dots \right\} \end{aligned}$$

in which it will be seen that if only a occurs in the denominators in the F , the factor is $1 - 1/a$; if both

a and b occur, the factor is $(1-1/a)(1-1/b)$; and similarly if a , b , and c occur, the factor is

$$(1-1/a)(1-1/b)(1-1/c).$$

This formula applies to any number of things. The function F is the x of Mr. Bayliss's table.

G. H. BRYAN.

Public-school Holidays.

At the beginning of the year the columns of *Truth* contained many letters on the subject of public-school holidays. The writers have protested against the length of these holidays, amounting in some cases to sixteen or seventeen weeks in the year, and have urged thirteen weeks as a maximum. Even this latter period is more than double what is customary in all other professions. The argument that it is for the sake of the boys that such lengthy holidays are given can hardly apply to those over fourteen years old. The net result of long holidays is that the boys often have to begin the same subject two or three times, as they have forgotten all the elements they have learnt after a break of seven or eight weeks. All learning, to be effective, must be cumulative. Probably the real reason for the present system is that most masters are paid so badly that if they did not have some compensation in enforced idleness there would be a shortage of material. At present the best intellectual work is being done in the preparatory schools and with private tutors. In the former, with boys under fifteen long holidays are no doubt desirable. With the latter, holidays rarely exist at all. Few tutors close their establishments for more than four weeks in the year. So the argument that the masters need rest is inaccurate. It is a well-known thing for a boy to go to a tutor at the age of seventeen or eighteen with the same amount of knowledge with which he left his preparatory school at the age of thirteen or fourteen. The intervening years at his public school have taught him nothing but excellence in games, and perhaps skill in avoiding work. The private venture, that depends on its hard work for its success, generally outdoes any corporation where salaries are paid automatically.

PAGANUS.

The Use of Science Text-books in Secondary Schools.

THE tendency to eliminate the use of science text-books in secondary schools is becoming more and more noticeable. It seems strange that the teacher of these subjects should have to be so restricted in his methods as to be induced by the influence of educational reformers to teach the fundamental facts of science to children who are forbidden to use a text-book. This question was introduced into the discussion which took place at the meeting held recently of the Public School Science Masters' Association, by Sir Joseph Thomson, and the opinions expressed were sufficient to emphasise the importance and seriousness of the matter.

On carefully investigating this matter, the teacher realises that in the early part of the pupil's acquaintance with science, progress is absolutely impossible without the knowledge of a large number of facts. His work in the laboratory may be good, he may even be proficient in note-taking, but he is absolutely debarred in the early stages from entering into the wonders of scientific literature. The facts he requires, says the theorist, can be provided by the teacher at the opportune moment; but as Sir J. J. Thomson said, "A text-book must be extraordinarily bad if it is not better than the majority of notes taken in a good lecture." This is surely applicable to secondary schools. Although the pupil's notes are

good, his interest in the subject would surely be stimulated if he were allowed to use a text-book for reference. The prevailing note of education to-day, which Mr. R. Wyke Bayliss expressed as "Thou shalt not cram," must be interpreted in a more broad-minded manner.

A different construction must be put on what is conceived to be heuristic teaching in schools. If progress is to be made, the pupil must be given a wider outlook on science in his early years, for it is only by a sound knowledge of scientific facts that he can appreciate the usefulness of scientific principles.

GEORGE S. MASON.

The Grammar School, Fowey, Cornwall.

A Modification of Hare's Apparatus.

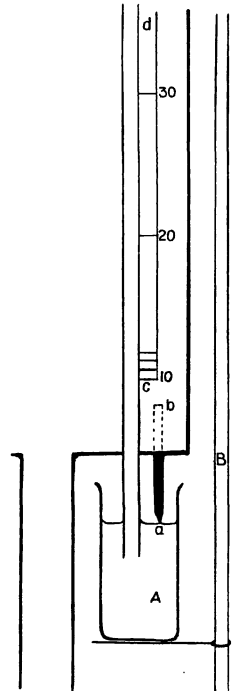
A PIECE of solid glass rod, ab , is drawn out to a point and fixed as shown. For most liquids a stout piece of copper wire would do well, and probably have a longer life.

A paper scale, cd , is made and fixed along the tube dipping in A, so that c is 10 cms. above a . Similarly for the other side of the apparatus. The beakers are placed on rings on ordinary retort stands, B, and adjusted so that the points of the glass just touch the surfaces of the liquids in the two beakers. The heights of the liquids in the two tubes are then directly read off on the scales.

This modification provides the pupil with a good exercise in making and fixing the scale and the piece of glass, shows clearly the principle of adjustment in Fortin's barometer, and no measuring scale need be put in the liquids.

W. G. MARTIN.

The Grammar School,
Hexham.



The School World.

A Monthly Magazine of Educational Work and Progress.

EDITORIAL AND PUBLISHING OFFICES,

ST. MARTIN'S STREET, LONDON, W.C.

Articles contributed to "The School World" are copyright and must not be reproduced without the permission of the Editors.

Contributions and General Correspondence should be sent to the Editors.

Business Letters and Advertisements should be addressed to the Publishers.

THE SCHOOL WORLD is published on the first of each month. The price of a single copy is 6d. Annual subscription, including postage, 7s. 6d.

The Editors will be glad to consider suitable articles, which, if not accepted, will be returned when the postage is prepaid.

All contributions must be accompanied by the name and address of the author, though not necessarily for publication.

The School World

A Monthly Magazine of Educational Work and Progress.

NO. 162.

JUNE, 1912.

SIXPENCE.

SCHOOL OUT-OF-DOORS IN THE SLUMS.

By J. L. PATON, M.A.

High-master, the Grammar School, Manchester.

ONE of the most striking things about modern politics is the way John Ruskin is coming to his own. Consciously or unconsciously statesmen just as much as political economists are beginning to work out in practice ideas which, on their first being mooted, were so ludicrous and Utopian that *Fraser's Magazine* could not undertake even to give them publicity. Old age pensions, the protection of children, State Insurance, the development grant for the restoration of the English country-side—all these are begotten of the gospel according to Ruskin.

When is education going to follow suit? According to Ruskin, no child can be educated humanly without nature. Natural scenes are "the pleasant places which God made at once for the schoolroom and the playground of our children." Without these the child "may be made a calculating machine, a walking dictionary, a painter of dead bodies, a twanger or scratcher on keys or catgut, a discoverer of new forms of worms in mud. But a properly so-called human being—never." This was the message he dinned into us; this was the one point on which he never contradicted himself. He ingeminated Nature. And we with our vast congestions of slum-housed population shrugged our incredulous shoulders, and said, in the words of Plato, "In heaven may be it is stored up."

And yet in education, too, John Ruskin is coming to his own, and it is in the most unexpected quarter that the first gleam of light is seen—in Deptford and in Canning Town. It has come in the most natural way, not as the result of any psychological discovery, not by illumination from Germany or any other country, but by the quiet doing of the obvious,

everyday duty. The first annual report of the results of medical inspection, issued four years ago, made it clear, to quote the words of the Chief Medical Officer, "that the physical condition of the people is one of the most pressing and insistent national problems." Something had to be done. If there was to be National Insurance, the best form it could take was to begin with the school children, and to begin as early as possible, for every postponement means both increase of cost and decrease of result. Something had to be done and done immediately. The first idea was to have recourse to the hospitals. But the hospitals were not adapted to the new work thrust upon them, their hands were already full. The result was expensive and unsuccessful. And so the school clinic came into existence, and, having come, it will remain. But the school clinic soon found that it was quite unable single-handed to fight against the chronic degenerative and malignant influences of slumdom which perpetuate disease:—foul air, dirt, vermin, infection, malnutrition, and the defective power of resistance bred of these things.

The school clinic, at the best, was only a centre for treatment. Like the out-patient department, it could dress sores and dispense drugs, plasters, and lotions. But it could not, of itself, turn a delicate, ailing child into a healthy child; it could not produce stamina and constitutional fibre. Its labour was, to no small degree, a labour of Sisyphus. Not infrequently a child that was cured of some preventible disease would come back again in a few months' time to be cured again of the same disease. The same evil conditions were constantly reproducing the same evil results, and no amount of drugs and lotions were of avail to secure permanent results. The only way was to call in the great restorative powers of Nature, that force upon which every doctor ultimately relies, *vis medicatrix naturae*.

First we had the open-air school, for which

Charlottenburg showed the way in 1904, and many English cities have now followed the lead. But no adequate solution was to be found in that direction. The few hundred children with whom they deal are but an infinitesimal proportion of those who need the open-air treatment, and even these return every night to sleep in the vitiated atmosphere of the crowded tenement. What is needed is something nearer at hand and far less expensive.

This is where Deptford has come in and shown that in this, as in everything, the real solution is simple and lies quite near to hand. Miss Margaret Macmillan has been the pioneer of school clinics, and she is also the pioneer of this new return to nature. The scene of her experiment is not perhaps ideally Ruskinian. It is an old burying ground with two grinning skulls on the pillars either side of the gateway. It is limited in area, if one measures only the surface. But after all it has more than two dimensions; and its extension upwards is as high as the heaven is above the earth. In the dust of these buried ancestors this new child-life is beginning to blossom.

The children come in two shifts. In the morning there are the children who are excluded from school because of skin disease; in the afternoon after school come the children who are anæmic and delicate.

How are they employed? The best answer to this question would be: They are not employed, they employ themselves. The child of 10-12 is a very practical little person. His great idea is, as John Dewey puts it, "to gain a foothold in the world." What he wants is to do something useful, to make something that is real: "His own nature impels him to grasp at adult activities." They set to work with more than the keenness of many adults to prune the trees, to dig up the ground, to saw the timber, to build their shed, to make their open-air stove, to chop the wood for fuel, and cook their own meal; they have to put down the concrete floor for the shower bath, and to lay the pipes; they have to make their own bedsteads—for as soon as the mild weather comes they are to sleep out like real Red Indians—and it is not a difficult thing to put together a low rectangular framework of wood, five feet by two, and nail some sackcloth over it; it is just as serviceable as any other bed, and one can do a better quality of sleeping in it if one has helped to make it oneself. The girls, too, have plenty to do. There are the tent curtains to sew, for the bath has to be screened off, and there are the blankets to be sewn up into sleeping sacks; this, too, is real, and the girls, too, have the sense of romance, and they, too, are going to sleep out, like those other girls of Miss Macmillan's at

Canning Town, who kept it up right into the winter.

No one who saw this experiment at work could doubt for a moment that it was based on sound psychological grounds. The child from 9 to 12 is more of a craftsman than anything else, and puts amazing vigour into anything that he undertakes *con amore*. His set lessons with their formal and restrained attitude do not appeal to him, but this life of the camp is actual, and it makes life intelligible to him. Work is no longer a thing repugnant; this is the sort of work he can fall in love with and do with all his might. As he starts in with his spade, which is two sizes too large for him, and finds himself up against a big stone which is too heavy to lift, he sets his wits to work and discovers the principle of the lever. Doing leads to thinking, and that is the best lesson in science that anyone can learn. "I'd no more strength than a flea," says the little pioneer, "but I just started, and it's all along of keeping at it." Though he is not equally conscious of it, his strength of mind is growing just as much as his strength of body.

On hygienic grounds the case is too obvious to argue. Some 60,000 children in our elementary schools suffer from tuberculous affections. The cure is fresh air. How many children live in single-room tenements it is impossible to say. The number must be portentous. Mr. Redmond says there are 21,747 families in single rooms in Dublin, *i.e.*, 36 per cent. of its total population. In one street in Southwark, Mr. Charles Booth tells us, there are 800 people living in 36 houses. In London one person out of seven is living in overcrowded conditions; in Leeds one out of every ten; in Liverpool one out of every twelve; in Manchester one out of every sixteen; in Edinburgh one out of three; in Glasgow and Dundee one out of two. These are the conditions that feed our workhouses, our jails and asylums. What else can be expected? Boys from single-room tenements are 11·7 lb. less in weight and 4·7 in. smaller than boys from four-roomed houses. Girls are 14 lb. lighter and 5·3 in. shorter. The cure is to take them out of single-room tenements and give them a room as high as the stars of heaven to sleep in.

But what about the cost? This is the two-handed engine at the door that knocks our Utopian schemes on the head. I should like to see the expense carefully worked out by a competent administrator. I do not believe it involves extra cost. For one thing, we have in every large city large, vacant, unused spaces. There are old brickfields, waste land about works, prospective building land, derelict sites. Owners are willing to lend these

as long as they are lying idle without any charge for rent, if only the lessee agrees to vacate the ground as soon as it is wanted. Owners have nothing to lose, the land gains in value, for instead of being, as it so often is, a breeding ground for pestiferous flies and other vermin, it is kept trim and sweet. Philadelphia led the way in showing how this vacant ground might be utilised for cultivation, and the Vacant Land Cultivation Society has shown in London and Birmingham, in Dublin and Edinburgh, how what is done in U.S.A. can also be done successfully in England. There is more of this vacant land than we imagine. Greater London has as much as 8,000-10,000 acres. Substantial sections from the parks might be set apart for the same purpose, for parks and schools are now under the same authority. A scheme which calls into play such vast latent resources is not to be ruled out as wasteful.

But this is not the only economy. Under the financial pressure of the education rates the Nottingham authority has been turning its eyes to Denmark and is trying the experiment of running the schools with double shifts morning and afternoon, thus halving the expense of accommodation. But the Deptford scheme suggests a more promising scheme of half-time in schools. Half the time, said Ruskin, should be spent in the garden. It would be quite possible to try the experiment with some of the poorest schools of having two shifts, which would alternately, week by week, spend the morning in school and the afternoon in the school garden plot, while all children of tuberculous tendency and all children from single-room tenements would sleep every night in the open-air shed which they, with the help of their school-fellows, had erected. It means an abridged time-table in the way of formal lessons, but the value of lessons is not measured by the figures on a clock-face. A bright, healthy child will learn more of the standard work in $3\frac{1}{2}$ hours than a dull, ill-nourished and pediculous child will learn in five. Moreover, a good many classes in geography, in drawing, in practical mensuration and arithmetic might be given in the open, and in summer weather practically any lesson could be taken out of doors.

The education of every child, said Ruskin, should include "heavenly realities." "See first that its realities are heavenly." This is a step, at any rate, in the direction of making them less diabolic. The old burying-ground at Deptford, though it does not sweep away the iron bars of poverty altogether, lets in a new flood of sunshine through them. It is the waste places of Jerusalem that can save the wastage of child life.

MATHEMATICAL ESSAYS.

By CHARLES DAVISON, Sc.D.

THE mathematical essay, for examination purposes, seems to have originated in the papers set for the Smith's prizes at Cambridge in 1869. In this year, the subjects for eight dissertations were given, of which not more than two were to be attempted. In following years, the number of dissertations was reduced to four, and no limit was placed on the number of essays that might be written. The subjects set in 1877, for instance, were the numerical calculation of the real roots of algebraic equations; the geometry of the right line and systems of right lines; the motion of a rigid body about a fixed point when no forces act; and the laws of the induction of magnetism, with particular reference to the correction of the compasses of iron ships.

The Smith's prizes retained a monopoly of the essay paper for many years. In 1905, however, a special "bookwork paper" was set in the examinations for entrance scholarships in the Trinity group of colleges. The questions, like those set in the Smith's prizes examinations, were of a general character—that is to say, but little guidance was given in many of them as to the plan of the essays. Some idea of the paper will be obtained from the following question given in this year: "Give a short account of reciprocation with some examples of theorems derivable from one another by this method; and examine in more detail corresponding properties of confocal conics and coaxial circles."

In the following year, the essay paper was abandoned, but in 1907 it was replaced, and in this year it also made its appearance in the Pembroke group as a "general theoretical paper" in place of the usual problem paper. The Pembroke paper was somewhat similar to that set at Trinity in 1905, as will be seen by the first question: "Give an account of the principal properties of a system of coaxial circles." Since 1907, the essay paper has been given every year in both groups. There has, moreover, been a gradual change in the character of the paper. The experience of the first year or two probably showed that it was difficult to assign marks equitably unless some guidance were given as to the contents of the essays. In place, therefore, of such questions as those quoted above, the type of question approaches more nearly to the following set in the Trinity group in 1910: "Write a short account of the method of projection in geometry. Include in this account the properties of a projected figure corresponding to (a) circles, (b) right angles, (c)

a pair of equal angles, (d) middle points of lines, and (e) foci of conics, in the original figure, and illustrate your theory by stating in a form true for all conics the property that the angle at the centre of a circle is double that at the circumference." It will be seen that some latitude is still left to the candidate; he is allowed scope for originality of treatment, but each question tends to become a brief examination paper on the whole of a small subject or portion of a subject.

To write a good essay requires more than the mere bookwork knowledge of a subject. The writer must have thought all round it, and traced its relations with other subjects which he has previously studied. In all probability, the essay paper is quite as good a test of the originality and power of a candidate as the old problem paper, in which a certain measure of success could often be attained by practice.

My object in the present paper is not, however, to treat of the essay from the examination point of view, so much as to suggest its usefulness in the ordinary work of a class, and, having tried essays in the middle as well as the upper classes of a school, to mention a few points for their successful practice. It is, of course, only possible to set essays frequently when the reading of a class is somewhat advanced. But there is no reason why an essay should not be given occasionally in a class which has read geometry for only one or two terms. In such a case, the chief object of the essay is to systematise the knowledge of a connected group of theorems. One subject that will naturally suggest itself at this stage is the congruence of triangles. The object of the essay would be to discover the pupils' grasp of the different tests of congruence, not only by the actual statement of such tests, but also by pointing out the erroneous reasoning in an incorrect proof. The question, or series of questions, might run as follows:

1. Write out four different tests of the congruence of two or more triangles.
2. Prove any one of the four tests.
3. Give two different proofs of the theorem: If the vertical angle A of an isosceles triangle ABC be bisected by a straight line AD which meets the base in D, show that BC is bisected at right angles by AD, and point out which of the tests of congruence are used in these proofs.
4. Point out the error in the following reasoning: ABC is an isosceles triangle, and D is any point in the base BC; in the triangles ABD, ACD, AB=AC, AD is common, and $\angle ABD = \angle ACD$, therefore the triangles are

congruent. What is the only fact that we know about the angles ADB, ADC?

5. If the altitudes BE, CF of a triangle ABC be equal, prove that the triangle is isosceles. Also point out the error in the following reasoning: In the triangles BCE, CBF, BE=CF, BC is common, and right angle BEC=right angle CFB; therefore the triangles are congruent.

In elementary geometry, the number of essays that can be set is limited. One might be given on the different forms of the quadrilateral and on the properties of the general quadrilateral or of particular forms; another on the three principal tests of parallelism, and on the use made of all three in furnishing two different proofs of the theorem that the straight line joining the midpoints of two sides of a triangle is parallel to the third side, and is equal to half the third side.

In elementary algebra, subjects are also scanty. One may be given on the different solutions of the following problem: Two men are riding along a road in the same direction at the rates of u and v miles an hour. The former passes a point P at a certain moment, and t hours later the latter passes a point Q, which is a miles ahead of P. Show that they meet after $(a - ut)/(u - v)$ hours. Discuss the nature of the different solutions, (i) when u is greater than v , and a is respectively greater than, equal to, or less than ut , (ii) when u is equal to v , and a is respectively greater than, or equal to, ut . Another might be set on the solution of anomalous equations such as $2x + 4y = 8$ and $4x + 8y = 24$, and its illustration by means of graphs.

On the whole, the essay can only become a regular feature of class-work when the reading is somewhat extensive. It may then be made to serve different purposes. The chief, as before said, is to group together allied theorems and to show their relations with one another. A second purpose is to group together widely separated theorems or to show how a theorem in one part of a subject may have applications in other and widely different parts. For instance, a theorem connected with the polynomial theorem, namely,

$$(\sum a_i)^3 = -2\sum a_i^3 + 3\sum a_i \sum a_j^2 + 6\sum a_i a_j a_k,$$

may be applied to solve equations of the form—

$$x + y + z = 6, \quad x^2 + y^2 + z^2 = 14, \quad x^3 + y^3 + z^3 = 36,$$

and also to find the sum of the products three at a time of n successive integers or odd numbers or terms in arithmetical progression. Occasionally, an essay may serve to develop a second proof of an important theorem. As an example, Wilson's theorem may be de-

duced, by means of Fermat's theorem, from a formula proved in exponential series that—

$$(n-1)^{n-1} - (n-1)(n-2)^{n-1} + \frac{(n-1)(n-2)(n-3)^{n-1}}{2!} - \dots = (n-1)!$$

for which little use as a rule is otherwise found. Or, but more rarely, perhaps, a theorem which lies beyond the ordinary range of a class may be developed with the aid of guiding hints, such as Newton's method of determining a superior limit to the roots of an equation, or Lagrange's method of approximating to the roots of an equation.

In schools in which different subjects are not taught by the same master, an essay may include points that are likely to be passed over as belonging to two separate subjects. For instance, some geometrical theorems may be proved very simply by statical methods, such as the theorems that the straight lines joining the mid-points of opposite sides of a quadrilateral bisect one another, or that the mid-points of the three diagonals of a complete quadrilateral are collinear.

These, of course, merely provide occasional subjects for essays. The best possible subjects are those which lead a student to look at his reading from different points of view. One of the best set in the entrance scholarship examinations at Cambridge is the following given in the Trinity group in 1905:

"Discuss the geometrical representation of the quantity $x+iy$, where x and y are real numbers and $i = \sqrt{-1}$.

"Proceed to give geometrical constructions for the addition and multiplication of such quantities, and to show further that, when n is a positive integer,

$$(\cos \theta + i \sin \theta)^n = \cos n\theta + i \sin n\theta.$$

Extend the last theorem to the cases when n is a negative integer and a fraction.

"Show that all the roots of the equation

$$x^n = \cos n\theta + i \sin n\theta$$

can be thus determined, and hence obtain the real quadratic factors of the expression

$$x^{2n} - 2x^n \cos n\theta + 1."$$

The least satisfactory form of question for school use is probably one that furnishes no guide as to the contents or plan of the essay and is unlimited in amount. To "give an account of the elementary properties of determinants," for instance, would, to a great extent, lead to the mere reproduction of bookwork, and possibly to the inclusion of unimportant material. But occasionally, merely to test a pupil's power of exposition, it may be worth while to suggest an essay of this type. The tendency in such a case is to give a string of articles of bookwork, each with its heading

underlined to represent the italicised enunciation of the textbook. The numbering of articles, as in the books, should be encouraged. It indicates a grouping of connected paragraphs, just as a paragraph is a grouping of connected sentences. But the enunciation, in an essay, may be left to the end of each article, and given as the conclusion to which the article leads.

LA SALLE DE PHONÉTIQUE.

By JOHN PRIESTNALL, M.A., Municipal Secondary School, Rochdale, and R. G. PRIESTNALL, B.A.

FOR many years the idea of using the gramophone to aid in the teaching of foreign languages has been in the air, and of late it has resolved itself into practical shape. Its possibilities have been acknowledged on all sides by school teachers, but in spite of that fact its use has not become so general as one might have expected.

For this, however, we are not without reasons. Until quite recently phonographic reproduction was by no means perfect, and so lacked utility from the teacher's point of view. Records in a foreign tongue, specially produced and specially adapted for teaching purposes, were not obtainable. They had yet to be made trustworthy with regard to accent, diction, and elocution. Now, both machines and records have reached such a pitch of excellence that these preliminary but real objections are done away with. The problem of the teacher has become not so much whether to use the gramophone or not, but how best to make use of it.

For day and evening schools, technical institutes, colleges and universities, the solution of the difficulty demands a scheme which could be worked into the time-table without further overloading it, for in many cases the position of the language master is such that more actual teaching would be as injurious to his work from a subjective, as less would be from an objective point of view. Whilst the student must not be deprived of any lessons, yet the teacher's work must be supplemented without an increased demand upon his time and energy.

Before detailing the scheme here proposed, it is necessary to note that the ordinary use of the gramophone does not sufficiently meet the case, and allows power to run to waste. Listening as one of a number, and listening in order to learn new and strange sounds, imposes great strain on the listener. The physical strain interferes with the mental concentration of the pupil, consequently he soon tires, his efforts relax, and the stream of sounds

flows past unheeding ears. A most important objection, also, is that opportunities of practice are greatly restricted, for they occur only as set lessons or parts of lessons. But if the gramophone is to be of any use to the many for whom study abroad is impossible, the frequency of such opportunities is a vital point.

If by any means we could bring into our schools the language of the educated foreigner clearly and correctly enunciated, and perfect in accent, phrasing, and diction, making it at the same time readily accessible as often as time allowed, we should be far on the road towards giving our language teaching vitality and interest. Moreover, the fact that the gramophone must either appear as a set lesson, or part of a lesson, brings us back to a point we have already considered. It must, used in this way, either diminish the actual teaching received by the student, or add to the work of the teacher.

It is essential for success in the use of the gramophone to have some well-defined plan of teaching, and this is all the more necessary when the student is to have a use of the gramophone as free and unrestricted as possible. Bearing these things in mind, the ablest solution of the question—how to use the gramophone to the best educational advantage—seems to be found in the establishment of a *salle de phonétique*.

Briefly described, the *salle de phonétique* is a room set apart for private study with the gramophone. It is fitted up with a machine specially prepared, and connected with strong tubes which pass down the middle of tables arranged lengthwise from that on which the machine stands. To these tubes are attached at convenient intervals smaller ones made of indiarubber, having earpieces not unlike the old phonographic apparatus. These hearing tubes are very light, and can be adjusted so that any easy position may be assumed by the listener. The ear-caps being held in position by a light head-band, the hands are left free, and thus the student, while following from his book whatever is being repeated by the record, can turn the pages or make any written notes necessary. A sound moderator enables each student to adjust the volume of sound to suit himself. Such a room would accommodate thirty students or even more.

Now this "phonetics room" is a distinct advance on the ordinary use of the gramophone, since it renders to both student and teacher the utmost value of the machine. In the first place, the *salle de phonétique* gives to the student a certain degree of isolation which renders him comparatively independent of any other noise in the room, and so does away

with much unnecessary strain. Even the coming and going of other students need not interrupt him, while the room, being for private study, will be recognised as a "silent" room.

Whenever the student has time for private study the *salle de phonétique* would be open for his use. In secondary schools preparation lessons at once afford obviously suitable hours for its use, while other occasions could be arranged, according to the time-table. In technical schools and colleges the room could be used much more freely, the free hours of individual students in such institutions being more numerous and not so apt to occur simultaneously. The room would be open more or less continuously during specified times, and the entry, departure, and length of stay would depend entirely on the convenience and necessity of each individual student. To give such facility an operator would be needed to take charge of the machine, but this work, since the records would be known by number, would be quite mechanical, and could be undertaken by a caretaker or other man employed on the premises.

From what has been said of the arrangements for using the "phonetics room" it is apparent that there would be students from different classes, and of different attainments, in attendance at one and the same time. This is really one of the great conveniences of the scheme, and no deterrent as might be supposed. In practice it will be found to achieve a very real saving of time as compared with the class use of the gramophone. The exercises will be carefully chosen and graded, so that some will specially illustrate niceties of pronunciation, some diction and phrasing, and others rhyme and rhythm, but, though each will emphasise its particular point, some or even all the other difficulties will occur in many of the exercises. Thus any one student may hear, besides his own set exercise, different ones, yet he can still study his particular lesson from them, and actually gain in practice and in interest by the variety. This difference among the students leads to no difficulty as to what record shall be put on the machine. After repeating one exercise twice or thrice, the operator will proceed to the next in order unless all the students reject it, in which case he will again pass on.

It will be seen that such a room is an immense gain to the student, for it gives him help in that part of his work which must be done by his own effort—that is, in the matter of frequent practice. Practice, in the absence of a model, always means a certain gradual falling away from the pattern set. In the "phonetics room," however, there will be the

perfect model, always accessible, never varying, and never weary with continual repetition. What teacher could undertake so much, or who would demand it of him? The gain of the student is also the gain of the teacher. The very fact that the former has been able to practise and study to better purpose in the interval between the lessons, helps the teacher considerably by saving much drudgery and repetition.

For the teacher also, be he English or foreign, this new departure has another advantage. It brings within the school walls an unimpeachable standard of language which will prove its value in many ways. To this he can readily refer if in doubt, and by means of it he can keep his own facility with the spoken language, as it were, tuned up to concert pitch. Even the holidays abroad which many language teachers are in the habit of taking for this purpose, are not possible to a great majority, and if they were, the necessity and usefulness of the readily accessible standard still remains.

What a teacher gains in accuracy he also gains in *morale*, since the assurance of being correct gives him both ease and force in his teaching. The conscientious teacher, harassed by small doubts, cannot attain to the same directness and boldness in his work, and so loses some of the confidence of his pupils. He fails to impress and inspire them.

It remains to point out that the *salle de phonétique*, once established in a school, could be of great use, not to students only, but to people already proficient in the language, who wished to keep themselves in practice. Demonstrating this interest in foreign tongues are numerous societies all over the country, the members of which would be glad to avail themselves of an institution at once a reference and a standard.

The adoption of this scheme in schools would be no leap into the dark, for it has passed the experimental stage triumphant. In France itself it is already in use for the purpose of teaching French pronunciation to foreign students at the University of Grenoble. To further this particular branch of study, the University there has spared neither means nor effort, and one of its developments in connection with the study of phonetics is the private study room with its phonographic appliances. It is a novel feature of the course, and a most successful and attractive feature too, as all who have made use of it can testify. There is no reason why such an institution should be less effective in this country than in France. Its establishment there, for the use of students already surrounded by all things French, is an acknowledgment that definite and careful

study of pronunciation still remains a necessity, and that there, as elsewhere, where so many dialects and provincialisms thrive, the standardisation of the language is still most important. If students living in France can study French to such greater advantage with the aid of the "phonetics room," then surely it can be of even greater utility to those who perforce must study at home.

The installation of the apparatus is not a very serious business. The writer has succeeded, after much experimenting, which has shown that certain types of machine are not so desirable as others for the purposes of practical phonetics, in obtaining a model of great simplicity and efficiency. The apparatus may be set up as a fixture, but where lack of space should forbid the setting apart of one room for use as a "phonetics room" only, it can readily be constructed so as to allow of its being disconnected and removed out of the way should necessity arise. Lastly, the cost of full equipment for such a room is not at all exorbitant, and certainly ought not in itself to be any obstacle to its adoption.

SCHLUSSFEIER: AN ANNUAL FESTIVAL OF GERMAN SCHOOL LIFE.

By F. SMITH, B.A., B.Sc.

ON the last school day of March in each year the German Minister of Education might say (after the manner of a celebrated French Minister of a former day), "At this moment all our schools throughout the Empire are celebrating their *Schlussfeier*."

This annual festival of German school life is universal, and marks the end of the school year. It might be likened to an English Prize Day without prizes, or to a Speech Day without speeches. Every scholar, whether in *Volkschule*, *Mittelschule*, or *Gymnasium*, regards it as a red-letter day. For the oldest scholars it is a public farewell to their eight years' home, and for the younger scholars it is a public promotion to a higher class. For the teachers it means an exhibition of the year's work; for the parents, a day inside the school building; while for the casual visitor like myself it means an unchallenged entrance to every room, whereas on every other day of the school year the doors are closed to me unless I can produce an official permission which can only be obtained with great difficulty.

In the class rooms are exhibits of drawings, models, and needlework, and in the gymnasium (the central hall of the school), the scholars give an entertainment to large gatherings of parents. The programme may

take up two complete half days in a large school, an afternoon for the juniors, and a morning for the seniors.

The proceedings vary but little in each school. There are songs and recitations and dances almost without end, and though the parents look on with unfeigned delight, and never seem to tire of the long programme, it is strange to hear no applause. But this means nothing to the German scholar. He is a very industrious little person, who forges his way through an appointed task without giving heed to other things.

But though outwardly there is the same routine procedure, I was able to see some well-marked stages in the development of the young German mind when I visited different types of German schools recently at the time of the *Schlussfeier*. In the *Volkschule*, or elementary school, the performance was regular and stereotyped, as it would be the world over with scholars of this age. There was no self-consciousness and no traces of individuality. The scholars gave what was expected of them as uniformly as a plane mirror reflects an image. In the *Mittelschule*, or higher elementary school, the scholars seemed to be conscious of their opportunity, and used it. The performance was less mechanical. The girls in particular were bent on making it a "great day." They introduced innovations occasionally which rendered their parts more striking. Yet I have seen similar characteristics in English scholars of the same age, and, indeed, it would be interesting to discover at what age the children of any country grow nationalised. For the characteristics of childhood know no limits of race. They are universal. In adolescence we have the transitory period, when the national temperament is gaining the upper hand, and soon the scholar is marked as of one nation. Thus in the *Gymnasium*, or secondary school, I felt at once that I was watching German children, and witnessing the definite expression of the German mind.

There is a wide gulf between the English and German products of higher education, and the advantages are not all on one side. Thus, in the *Gymnasium Schlussfeier*, in addition to the customary songs, essays were read by several boys in different languages. They were long and scholarly. They showed erudition, critical power, and wide reading. They must have taken many weeks to write, or rather they were the result of systematic work extending over several years. No English schoolboy would have completed a task so thoroughly. Yet the essays were cold and ponderous. They had strength and wisdom, but were lacking in

daintiness and humour. After hearing a clever examination and appreciation of "Cyrano de Bergerac" in excellent French for twenty minutes, one felt, if anything, rather less warm towards Rostand's masterpiece than before, for here was the intellectual ability which does not enthuse—a development of the brain at the expense of the heart. It was not a far cry to see in this finished product of German schooling the patient and ponderous scholar who, next year, at the university, will be bent on discovering some intricate chemical compound, or elucidating some forgotten and unimportant text. In a word, the German *savant* was almost made, and the German characteristics were clearly marked out.

And through all the different activities of our neighbour's schools, one cannot escape a last word on the organisation of the whole system. The nation which has produced the most punctual railways, the most efficient policemen, and the most elaborate officialism in every branch of life has also organised its schools so thoroughly as to leave no detail unheeded. Nothing is left to chance. It is magnificent both in plan and execution. It is a machine of huge dimensions working efficiently at high pressure. But one is inclined to offer the criticism that it is an excess, an exaggeration. It gives too little place to genius and personality and individual variation. It relies too much on habit, on fixed methods, on mechanical law, and too little on man's higher, though more irregular, expressions of activity. But as a system it is a triumph of organisation, and the smoothness of its working and the completeness of its arrangements are eloquent proof of its very high efficiency.

AN EXPERIMENT IN APPLIED EDUCATION.

By A. H. ANGUS, B.Sc.

Headmaster, George Dixon Secondary School, Birmingham.

AS noted in a brief paragraph in the May issue of *THE SCHOOL WORLD*, the George Dixon School ordained for itself a unique Easter holiday by undertaking the Herculean task of levelling the school playing-field. When the original school, which was founded by the late George Dixon in 1884, was removed to the new buildings in Edgbaston upwards of six years ago, no provision of any sort had been made for a playing field. The securing of this simple necessity of true secondary-school life was left entirely to the headmaster. After much difficulty five acres of land, far from ideal for the purpose, but the only possible plot (about two miles away) that

could be secured anywhere near the school, were taken on lease.

Just enough labour was then spent on the field by the school committee to make possible a start in sport. Anything like really good and enjoyable football and cricket were impossible, for apart from any question of surface, the field lies on a slope of varying fall up to 1 in 22. The cricket outfield was not only unpleasing, but dangerous. In addition to its being of restricted value, the pitch was of such a nature that even the most charitable comments of visiting teams were enough to gall the pride and offend the honour of the school, and to make it feel with double intensity the sporting disadvantage in which it was set compared with other schools. The question "to mend it or to bear it," which was first raised at the school camp mess, has been repeatedly discussed. Great and obvious difficulties forbade a too hasty decision. Finally the staff, as the "brains" of the undertaking, gave a hearty assent to the policy of "mend." The matter was then put to the boys. It was pointed out to them that such a job would mean loyal and persistent co-operation, and the main difficulties were emphasised in all their arduous and prosaic details. Nevertheless, here again a hearty "Aye" was given, and preparations for the work were at once put in hand. The school committee readily agreed to the share of the scheme allotted to them, and granted some £50 odd required for the expert labour of stripping and re-laying turf. This stripping, removing, and stacking of the turf was done in the last few days of term, before the school commenced operations.

The area to be dealt with was first carefully surveyed and definite measurements made, to be worked to as levelling proceeded. During the preliminary arrangements much educative value was got out of the discussions; geography, mathematics, handicraft, and science periods gained fresh interest by the introduction of real and impending field problems. The theory of levels, practical questions of excavation, measurement, transport, &c.; consideration of strata—immediate and neighbouring—which would affect drainage; total area and volume of stuff to be removed and replaced; these, amongst other matters, were submitted to the boys for exhaustive form-room treatment.

The tools and equipment required were picks, spades, forks, shovels, wheelbarrows, rakes, and an abundance of planks to make the tracks for the barrows. All the boys brought something, and what was lacking from them, friends of the school readily supplemented.

The work to be accomplished was, broadly

speaking, the removal of a total "fall" varying from 3 to 5 feet in the width of 110 yards. When the lease of the field was obtained, a cricket pitch of 50 yards by 40 yards was levelled and laid. This was done by cutting into the natural slope, with the result that embankments were created on all sides that proved a source of annoyance and even danger to players. The task then was the removal of these embankments by reducing as much of the field as possible to the level of the existent cricket pitch. This meant roughly the removal of a wedge-shaped volume of earth, clay, &c., about 110 yards by 30 yards, with a maximum depth of 4 feet, from the upper side of the pitch to the lower, together with a trimming up and down of the levels at the ends of the pitch.

Actual work on the field was begun the day after the school closed for the Easter holiday, when the important work of "pegging-out" and securing levels was undertaken by several of the masters. Along the imaginary boundary line on the lower side of the slope that had to receive the earth removed from the far side of the pitch, 3-inch square posts were driven firmly into the ground at intervals of 30 feet. The corner-posts were first fixed, the level being determined by home-made sighting rods, made respectively on the pattern of the V backsight and inverted V foresight of a rifle, with a third tee-piece as the sighting-object accurately placed by eye from the existing square previously laid by the contractor. Transversely the lines were laid dead level, but along the natural slope a slight fall was given for the sake of better drainage. When the corner posts were set exactly, a second post was fixed in the transverse direction at dead level, using a 20 foot straight edge and spirit level. The remaining posts along the boundary line were then easily placed by eye-sighting. Secondary smaller pegs were next put in at intervals of 20 feet on the lower side.

This preliminary pegging-out accomplished, the field was then ready for the "navvies." The organisation of this volunteer corps was a matter of utmost importance, and was carefully carried out beforehand. The whole army was divided into three squads, A, B, C, of 60 boys to each. The squads were subdivided into nine gangs of six workers each, this division being so arranged as to ensure there being a good proportion of bigger and smaller boys in each. An upper schoolboy was put at the head of each gang, and every gang was regarded as a complete entity—diggers, fillers, and wheeler—so as to be readily movable to relieve pressure of work in any locality, or to attack fresh work as exigencies required. The remaining six boys—the more or less physic-

ally weak or medically unfit—were assigned very useful jobs as messengers, timekeepers, and cooks. Brass checks were made in the handicraft room in spare time, and every boy employed had one which he hung up on his own squad board on commencing work and took away on leaving the ground.

The plan of working was very simple, and resulted in two four-hour shifts per boy in two days, with one complete day off in three; squad A worked a shift of four hours before dinner, 9 to 1; squad B worked from 2 to 6; squad C opened the day's work the following day, and so on. Thus there was good variety of time, a fair proportion of leisure, and consequent briskness of work with a complete absence of staleness and over-fatigue. It must be recorded that the masters were by no means so merciful towards themselves!

The duty of the timekeeper was to whistle at the end of each half-hour, when three-minute rests were enforced. At half-time a break of a quarter of an hour was taken, when the whole gang refreshed themselves with lunch or tea prepared on the ground by the cooks. Here camp equipment came in very usefully, as well as help, too, of lady friends, not the least valuable item being the instruction they gave in kitchen methods. The comparatively short spells of working time call for some remark. The pace was not that of the average working-man, but a much higher one. There was a dash and an intensity about the attack made possible by the whole organisation of the work. Short shifts were therefore essential. The result was an eight hours' day of concentrated and vigorous hard work, which was maintained all through the contract.

The task throughout was the more difficult because the subsoil was a stubborn mixture of marl and clay; consequently the original top-soil had first of all to be removed and preserved to go back again as top-soil. The area worked upon was divided into fairly narrow sections from top to bottom of the slope. The top-soil of the first section was removed outside the working area, and then the subsoil was "got"—with pick, fork, spade and shovel—"wheeled"—always along plank tracks—and "made"—roller work requiring careful judgment. Certain practical points rapidly gleaned from experience were carefully insisted upon in these operations. Too much earth, the product of pick or fork, was not to be down at any given time, but the "floor" had to be cleaned up as fast as excavation proceeded. The barrows were always loaded "on the wheel," handles towards the bank, one filler on either side of the barrow. The down wheeler went only half the length of the "run," left his barrow there and

changed to the up line, where he took up an empty barrow on the return journey, the full one being taken the latter half of the way by a wheeler who had brought up an empty barrow from the lower zone of labour. This was an important and useful regulation, the lessening of the length of run for individual wheelers proving a marked economy of labour. Though these precautions may all appear but trifles, they were just those trifles that made all the difference. Every breach of them led to inefficiency and wasted labour.

As the subsoil was brought down and tipped it was scattered and broken up by a "fork gang," and then rolled by a "rolling gang," under the ceaseless supervision of a master, for on the success of this part of the work the trueness of the future level would depend. Care was taken to spread the stuff in comparatively thin layers, each layer being well rolled before the next was spread, so that subsequent sinking should be avoided as far as possible.

The drainage was a matter of careful thought and no less careful execution. A very gentle gradient was given to the subsoil. Pegs were continually put in as excavation proceeded, using straight edge and level for the adjustment of every peg. They were then whitewashed up to the required subsoil level, regard being paid to the fall that was required. In addition to this, rubble drains were put in, the numerous stones unearthed in the digging being used in the making of them. The minor ones were made roughly V-shaped, and were laid so as to run into secondary drains leading away into two main pipe drains on either side of the field.

When any given section was finished as to the sub-soil, the top-soil of the next section was simply transferred to it, and thoroughly raked and dressed ready for the relaying of the turf. This last operation had to depend largely upon favourable weather, or facilities for watering. The unusually dry April was a source of no little anxiety, which happily disappeared on the advent of the welcome showers of May. The rapidly knitting turf and the cheerfully and abundantly growing grass now quite shame the recollection of anxious thoughts.

And so the work proceeded, without intermission, and with no flagging or shirking, day after day throughout the Easter holiday of three weeks. The time proved all too short for the thorough manner in which the execution of the great task was carried through. School re-opened, and the whole position had to be considered in a new light. A pseudo-suggestion, *ex cathedrâ*, to the boys that the uncompleted task be handed over to the school

authorities to be finished by an outside contractor was answered by a negative as scornful and emphatic as their acceptance of the task at the end of last term had been cheerful and universal. Evenings and half-holidays of the summer term were eagerly sacrificed that the mighty undertaking might be achieved by the school, to its own honour and for the lasting good of future generations of its *alumni*. Cricket, too, as well as leisure, had to go; all outside fixtures for the season had to be cancelled, and the possibility of even school and practice games towards the end of the term is remote. A re-organisation of the squads was at once carried out, and again the work went merrily forward. At the time of writing the work is not quite finished, but the successful completion is clearly within sight.

But all this record of physical accomplishment would be very incomplete and comparatively trifling without reference to the higher and more valuable results that have been observed, and that are very pronounced. The gain to the boy workers from the simple point of view of physical health and fitness has been tremendous. To the majority of day-school boys, the shorter holidays of the school year commonly degenerate into a desultory and aimless "passing of time." The very fact of having a definite purpose, and that a corporate school purpose, in itself made a mighty difference. The holiday assumed a new and uplifting aspect. There was a subtle and mysterious change of mien about the boys on their return to school which was by no means fully explained by their air of exceptional physical fitness. Not only had they eaten and slept throughout their vacation as they had never done either before: they had gained in manhood, in personality, in dignified self-respect. These gains individually to the boys and collectively to the school are to be written down as incalculable. They alone far more than repay all the efforts and self-denial that the project demanded and received from the staff.

The intellectual benefits have been briefly touched upon. They merit strongest emphasis. A mine of practical mathematical, engineering, and geographical exercises has been successfully and fruitfully worked. All sorts of problems of truest and finest workmanship on a lowly plane daily cropped up, and were immediately and faithfully tackled and solved. Humble navying jobs have "discovered"—to himself and to his fellows as well as to his masters—many a boy who else would have lived and ended a life of comparative and fruitless obscurity in the common-places of daily life in the form rooms. Navying has proved more bountiful than camp in such gracious opportunities. Indeed, from

these points of view alone the precious results of the task have been not less mighty and far-reaching than the task itself appeared impossible and Herculean in magnitude and difficulty at the outset. And best of all, and highest of all, the boys have made willing self-sacrifice with cheerful unconcern and absence of self-consciousness for the honour of their school and the good of their successive generations of Dixonians. A coming generation of Old Dixonians will alone be able rightly to assess at its best value the spending of what will ever be to this school a historic Easter holiday.

SCHOOL DIETARIES AND HOME INFLUENCES.

IN reviewing the papers contributed to the recent Conference on Diet in Public Secondary and Private Schools and the discussions which they provoked, one is confronted with two distinct problems. The first, which is by far the more important of the two from the national and racial point of view, concerns the physical condition of the pupil as he or she comes to the school from home. The second is concerned with some desirable modifications and improvements, in certain details, of the system of school feeding as at present carried out; it is of less importance than the first, in itself: and the prospect of solving it with ultimate success appears well-nigh hopeless if the first should prove impossible of amendment.

For, in the first place, it was generally agreed that, having regard to the class and type of school under consideration, the nourishment provided was, with exceptions of extreme rarity, adequate in amount; also, that it contained the essential elements of tissue regeneration and growth—proteids—of energy-givers—carbohydrates—of fats and salts and water, which are essential; that, indeed, the nourishment supplied to these school children of to-day is more generous in quantity, better in quality, and more attractively served than was the school dietary on which their immediate ancestors contrived to compass an adolescence and a manhood which achieved no inconsiderable place in the world's history. Moreover, it was asserted by those qualified to speak with both experience and authority that the normal healthy child always has a good appetite for plain, wholesome fare, presented at suitable intervals of time; and, further, that he may be allowed to eat to repletion without sustaining ill effects. Indeed, a sense of comfortable repletion, in such circumstances, is merely the brain's translation of a message received to the effect that

a satisfactory amount of nutriment is being absorbed from the digestive organs.

If, therefore, there are troubles and difficulties in regard to feeding present-day school children, the cause of these would seem to lie at least as much with the school-child as with the school dietary. And this is really the case. The modern child differs from the "normal healthy child" in that he very rarely possesses a sound set of teeth at the school age, so that his mouth is in a septic condition (not seldom added to by nasal troubles and adenoids), and his digestive organs subject to infection; he practically never masticates his food thoroughly—often scarcely at all; and while at home, he is apt to vitiate his natural appetite by sharing his parents' meals and acquiring a taste for the savouries and highly-seasoned dishes which are called for by the jaded digestion of modern life, thus forming a distaste for the relatively simple fare provided by the school. These are admitted difficulties: but they are such as can be effectively corrected only by a radical revision of the home life of children from their earliest nursery days, and by an awakening of parents to their responsibilities in this respect. To this end all schools should use their influence on behalf of their pupils and in their own defence.

There remain certain details to be considered in regard to the school dietaries as they stand to-day. Sufficient as they may be in the actual amount of food supplied, their value would in most cases be greatly increased by more attention being given to such matters as the following: Increased variety—not merely of dishes, but in their presentation; *e.g.*, not just a different dinner for each day of the week—which is but an extended monotony, easily anticipated by the weakest memory—but one extending over an unexpected limit, such as thirteen or seventeen days; a more liberal supply of fresh green vegetables, which might often be presented in a more attractive form: thus cabbages and the like, commonly objected to, may be made into an appetising dish if cooked with potatoes and flavoured with a little salt and butter, &c.; a more general use of vegetable soups (valuable from the mineral salts which they contain); and a freer supply of fruit. Vegetable salads and fruit salads are both useful and acceptable. Helpings of meat, &c., should be small, and application for a second helping should be encouraged, instead of giving a single large helping which may create disgust and which is apt to lead to waste.

Tea should not be allowed to stand for more than three minutes by the clock: all its useful elements are dissolved within that time,

when the muslin bag or strainer in which it is placed for infusion should be withdrawn.

The day's work should not begin until after breakfast (which may be fixed for a proportionately early hour in summer); and a definite interval should intervene between the end of each meal and subsequent active exercise of mind or body.

Finally, a most important point is the presence throughout each meal of a master who will not only exercise a general supervision, but is thus able to note undue haste in eating, and any refusal of food or apparent lack of normal appetite, and can promptly investigate its cause.

PERSONAL PARAGRAPHS.

MISS M. E. Hargood, who died recently at Cambridge, devoted a large part of her time to the various branches of education. She served on the Education Committee of the borough of Cambridge; she managed the Cambridge centres for the Local and for the Higher Local examinations; she was a keen supporter of the University Extension movement and was secretary of the reception committee of the summer meetings held in Cambridge every two years. "Miss Hargood's personality attracted the devotion of many friends. One of them described her as 'a rare and beautiful character with the intellect of a man and the heart of a child.'"

* * *

THE Rev. A. J. Church died suddenly at Richmond on April 27th. From school at Stanmore he entered King's College, London, at the age of fifteen; he matriculated at Wadham College, Oxford, and won a scholarship at Lincoln, where he took a second in 1851. After being a master for thirteen years at Merchant Taylors' School he became headmaster of Henley Grammar School, a post he held for three years, and then went to Retford as headmaster. His last teaching appointment was professor of Latin at University College, London; this he held until 1888. He was never so much a schoolmaster as a man of letters, and he will be remembered best for his work in classical literature; his translation of Tacitus was at once recognised as a more faithful rendering of both the manner and the matter of the author than previous translations had been. Popular books from Mr. Church's pen were his stories from Latin and Greek authors and his books for young readers, of which "The Count of the Saxon Shore" and "The Chantry Priest of Barnet" are good examples. Mr. Church was a good listener and an admirable talker with a keen sense of humour and a pretty wit.

THE Rev. Frederic Rendall was for thirty-three years a master at Harrow School. Educated at Bath and King Edward's School, Birmingham, he was one of the scholars that made the latter school famous; others were Westcott, Lightfoot and Benson. At Harrow his house was one of the most popular, and he himself won universal respect and affection.

* * *

DR. HENRY SWEET, reader in Phonetics at Oxford University, died at Oxford on April 30th. He was educated at Bruce Castle, Tottenham, and at King's College School, Oxford. He went for a time, too, to the University of Heidelberg. In phonetics and Old English philology he attained a position in the first rank among European scholars, and to both he was one of the first to apply modern scientific methods. Germany has based her method of teaching the pronunciation of English almost entirely on his work. His "Dictionary of Anglo-Saxon" is still perhaps the best dictionary of the language in existence. His studies included many languages, among which were Arabic and Chinese. He was a strong man of marked individuality and a keen controversialist.

* * *

ON the recommendation of the Advisory Committee on Higher Commercial Education, the Council of the University of Leeds has decided to develop the teaching of geography in connection with the department of economics, and has appointed Mr. Llewellyn Rodwell Jones as assistant University Lecturer in Geography. Mr. Jones was educated at Kingswood School, Bath, and the Royal College of Science; he obtained the Geographical Certificate of the London School of Economics; he has held masterships at Knutsford Grammar School, Richmond County School, and Farnham Grammar School.

* * *

THE Kentish Town and St. Pancras County Secondary Schools for Girls are to be replaced by a new school on a site in Highgate Road. Miss Morant, the headmistress of the former, is to be the headmistress of the new school, and Miss Bartram, the headmistress of the latter, is recommended as head of the new school now being erected in Ancona Road, Plumstead.

* * *

MR. WILLIAM BATH KEMSHEAD, who was for many years science master at Dulwich College, died in January at the age of eighty; he left estate valued at £47 15s. 9d. Mr. Kemshead had for some years been occupied in scientific research; he was a Brother of the Charterhouse.

THE resignation is announced of Canon Swallow from the headmastership of Chigwell School, a position he has now held for thirty-six years. He came from Heath School, Halifax, to Corpus Christi College, Cambridge, of which college he was a scholar. His first mastership was at Wellington College Preparatory School; he then went to Nottingham High School until he became headmaster of Chigwell in 1876. He is a member of the Essex Education Committee and joint honorary secretary, with Dr. McClure, of the Incorporated Association of Headmasters. There are but few important committees connected with the welfare of secondary schools or schoolmasters on which the Canon has not sat, and it must be a matter of great satisfaction to him that one of the most recent has just obtained from the Chancellor of the Exchequer the promise of money for pensions for secondary school teachers; if the pensions are not such as he wished, yet the principle is acknowledged on the eve of his retirement. He is an admirable committeeman, who never speaks but that he speaks effectively; he will be very much missed by all his friends and colleagues in active work, and it is difficult to imagine the Headmasters' Association without him.

* * *

THE Hereford County Council has appointed as headmaster of the Hereford Secondary School for Boys Mr. Alexander Rodway Allen, second master of the Central Foundation School, Cowper Street, London. Mr. Allen went up from Cavendish School, Matlock, to St. John's College, Cambridge, where he was thirtieth wrangler in 1899; he took the B.A. of London in 1894 and the B.Sc. in 1906. He has held masterships at Bootham School, York, Bury Grammar School, and is a member of the Assistant-masters' Association.

* * *

THE closer relation between the Universities and the practical and industrial work of the country will react for good upon both, and for this reason the appointment by the Council of the University of Leeds of Mr. J. W. Cobb is worthy of comment. Mr. Cobb is a former scholar and prizeman of the University of Leeds, and an Exhibitioner and B.Sc. of the University of London. Since 1891 he has been engaged with the Farnley Iron Company as chemist. He has made many contributions to scientific journals, mainly of a technical character, concerning coal, the working of furnaces, the testing of clay ware, the constitution and synthesis of glazes, and the corrosion of iron. Mr. Cobb is to be Livesey Professor of Coal Gas and Fuel Industries.

At the annual meeting of the Parents' National Educational Union the Rev. A. A. David spoke on "Some Educational Ideals." Here there is no need to speak of his ideals; as a speaker he may be disappointing, indeed, he sometimes is; but in committee, where there is work to be done, he not only does more than his share, but inspires others to push on. The faculty for work thus shown has no doubt been partly responsible for his rapid advance. He was educated at Exeter School and at Queen's College, Oxford. He was first a master at Bradfield and then at Rugby; then after seven years as assistant tutor at Queen's he went to Clifton College as headmaster in 1895, just ten years after taking classical Mods. at Oxford.

* * *

THE Assistant-masters' Association will suffer a real and serious loss in Yorkshire owing to the appointment of the indefatigable secretary of the East Riding branch to the headmastership of Morley School. Mr. H. B. Browne graduated in Arts at London University in 1896, and took his M.A. in English in 1904. He was a master three years at Norwich, two years at the Godolphin School, Hammersmith, four years at the Birkenhead Institute, and ten years at Hymers College, Hull.

ONLOOKER.

THE USE OF PRACTICAL EXERCISES IN THE TEACHING OF GEOGRAPHY.

THE interest aroused by the symposium on the question of sequence in the teaching of geometry, published in our last issue (vol. xiv., p. 173), encouraged us to attempt to obtain authoritative opinions on a subject which is being much discussed at the present time in connection with the teaching of geography in secondary schools.

There is a decided want of unanimity as to the place and utility of practical work in school geography. Many teachers would seem to have come to the conclusion that, with the hour and a half or two hours a week usually allotted to geography in most forms of secondary schools, it is impossible to arrange for the satisfactory performance of "practical" exercises by the pupils themselves. Other teachers allege that the unsatisfactory results—especially examination results—obtained after the introduction of practical work by no means justify its continuance, particularly in view of the amount of time it requires. In other quarters it is urged, too, that the proper performance of practical work necessitates the provision of special accommodation and equipment, for which many governing bodies are unwilling to arrange.

These considerations were laid by us before a number of representative lecturers and teachers engaged in geographical education, who were invited to express their views upon them. The generous response made to this appeal has enabled us to publish a collection of opinions which will prove of the greatest importance and value in determining the best practice for schools and colleges.

But, of course, in making a selection from a large body of teachers, it is inevitable that the names of many authorities, whose opinion would be of real assistance, will have been inadvertently overlooked, and we invite any readers able to contribute to the discussion to send brief statements of their experience for publication in our July issue. A summary of the conclusions to which a study of the evidence appears to lead will be published later.

R. N. RUDMOSE BROWN, D.Sc.,

Lecturer in Geography, the University, Sheffield.

I SHOULD be glad to give my opinion regarding the place and use of practical work in school geography if I may be allowed to preface my remarks by saying that I have no personal experience of school work and school time-tables, and therefore make no pretence at speaking authoritatively on the allocation of hours for practical exercises.

The perusal of a number of school books in "practical geography" and practical exercises in geographical work, forces the conclusion that not only is much of the matter of little value, but that a large proportion of it is not geographical at all. Many of the exercises and questions contained in these books really belong to nature-study or to elementary science. No doubt many of them are of use to pupils of geography (while others are not), but the time which they occupy should not be taken out of the hours allocated to geography, and this quite apart from the fact that their inclusion gives a totally wrong idea of what geography is. There is sufficient misapprehension on this point without it being further added to by making practical work in geography a chaotic medley of various exercises in observation and measurement.

Nor is this merely of academic interest, since it is important that the geographical idea should not be lost sight of even in the beginning of the subject; far too few students reach the university with any idea whatever of what geography consists.

It should be clearly understood that practical geography in the accurate sense of the term can only be done in the field. All that can be done indoors is to gain some idea of the notation of the geographer, *i.e.*, the reading, construction, and use of maps. The ability to read and interpret a map correctly is by no means easy to acquire, and deserves much attention and time. Considerable experience in examining schoolboys and schoolgirls has shown me that only rarely is this subject adequately taught. The map is looked on as an end in itself, and not as a means to an end. Accurate explanations of the symbols employed are frequently given by school pupils, but

scarcely ever do they show any power of interpreting the map. The cartographical representation of distributions and of statistics, while a most important part of the geographer's training, does not seem to me to be suitable for school children. It is often done, but in so simplified a manner as to convey either little, or something far from the truth.

With the exception, then, of map-reading and map-drawing, to which more intelligent attention should be devoted, I cannot say that I would regret the curtailment of practical work. Work in the open is, of course, most valuable, both in map-reading and map construction, but this I understand is not possible on account of the time demanded.

Such work with maps necessitates the provision of no special accommodation, and only simple and inexpensive equipment.

GEO. G. CHISHOLM, M.A., B.Sc.,

Lecturer in Geography, University of Edinburgh.

IN reply to your request of April 25th for a short statement of my views on the subject of practical exercises in the teaching of geography, I would first of all point out that any opinions I have to offer must be heavily discounted by the fact of my lack of experience as to the best method of turning to account "an hour and a half or two hours a week" in the teaching of the subject to boys of school age. Any opinions that I may express, therefore, must be taken as based solely on my sense of the requirements of the subject together with experience of the results of school examinations.

It is much to be regretted that examination tests should have so much influence on the teaching of geography, and that for two reasons, first, that there is a great deal of excellent teaching of geography that it is practically impossible to test by examinations; and, secondly, that there are various good by-ways in the teaching of geography the value of which will depend very much on the bent of the teacher, whose freedom of action should not be too much controlled.

The difficulty of obtaining the special accommodation and equipment required for much of the practical work often recommended for school is easy to understand, but it seems to me that for the most essential practical work in the subject very little equipment is required, and no undue allotment of time if the work is gone about in the right fashion. The work to which I refer is the old-fashioned exercise of map-drawing, though not carried out in some of the old-fashioned ways, which are indeed fast disappearing; not, that is to say, the drawing of maps with minute attention to irregularities of outline, but maps that indicate roughly the outline and the relief, the relations of important towns to plains, valleys, mountains, and mountain routes. For this purpose some rough method of showing the extent of high grounds is required, and some teachers have already attained excellent results of this kind by different methods. I would direct the attention of teachers to the methods adopted in the "Zeichenatlas" published by Debes, in which three colours are used—black, brown, and

blue—and in which outlines are greatly simplified for the sake of rapid execution. In the higher forms there should also be exercises in the drawing of such maps with the addition of prevailing and seasonal winds.

Much practical work difficult to test in examinations, but nevertheless very important, can be done with the aid of the Ordnance Survey maps that can now be obtained cheaply for school use. The obtaining of this privilege is, it seems to me, the most important gain that has been made in recent years for the teaching of geography. The maps used for that purpose should be those in which both shading and contours are employed at once. Examiners might perhaps be urged to exercise their ingenuity in setting good questions on such maps, good questions being understood to mean such as test good teaching of the subject and accordingly are quite within the range of the children for whom the questions are intended. But one of the questions frequently set on such maps (no doubt because it is so easy to set and to mark), the drawing of sections, ought, it seems to me, to be entirely given up. I set it once with results that made me resolve never to set it again. It takes up a good deal of time in the examination room, and yet it is ridiculously easy; so that all the candidates may be expected to get full marks for it. Moreover, it is apt to mislead. On the one occasion on which I set it I introduced a variant, to see whether the candidates appreciated the real significance of contour lines. I asked for two sections along the same line consistent with the contours. Only one candidate out of about fifty attempted a second section. All the other sections were in the usual style, presuming a regular slope from contour to contour, which is, of course, in glaring contrast to the actual forms of nature.

As regards other practical work, I have never had any experience of the use of plasticine, &c., and I have always felt doubtful whether the results of its use are likely to answer to the time required for it. It may afford excellent exercises combined with amusement for young children, but I should think it should be dropped at an early stage.

Plane-tabling with maps drawn by the boys based on their own plane-table work must form a very good exercise, and where the teacher has an inclination to that kind of work it is to be hoped that he will get due encouragement, yet it does not seem to me that it should be regarded as obligatory in the teaching of geography, and made the subject of regular examination tests.

G. F. DANIELL, B.Sc.,

Lecturer in Geography, London Day Training College.

ASSUMING that geography is to be taught as an "outlook" subject, able to give the rising generation a more intelligent appreciation of the world in which they live, it is evident that the work succeeds in proportion as it produces in the pupils a geographical attitude of mind—a power to think geographically. Some open-air work, judiciously carried out, un-

doubtedly assists the production of this attitude, and it is not easy to see how such work can be omitted without imperilling the main aim. I do not think it necessary that geographical excursions need be frequent—what is essential is that every member of the class should see how geographical observations are made at first-hand from nature, and that the results of the observations should be well worked out. It is also necessary that the younger boys and girls should have an opportunity of viewing a large expanse of country.

Another feature of modern courses is *measurement* made in the class-room, and the construction of models. These are good if not overdone; but there seems at present some danger that geography may suffer from over-measuring, as has been the case with the teaching of physics, both in school and university.

I am of opinion that expensive apparatus (other than good wall-maps and globes) is unnecessary, as better thinking usually results where home-made apparatus is employed, *e.g.*, for surveying and for astronomical work. Valuable astronomical observations can be made with very little expenditure of time where forethought and good organisation prevail. I do not think I can deal with the problem of special rooms and fittings in a few sentences; but I would warn your readers that a request for a room with a special aspect provides a very serious problem for the architect, and even a sympathetic body of governors may be obliged to refuse such a request.

The problem before teachers at the present moment appears to be: How to secure open-air work in geography with the minimum disturbance of the school time-table, and with the maximum result in geographical thinking.

P. H. L'ESTRANGE, B.A.,

Assistant-master, Malvern College.

Examination Results.—If teachers are bound down to a fixed syllabus and are judged by results of papers, true education is almost sure to be pushed aside. The worst form of teaching, namely, the getting up of a given text-book by cramming, usually gains the best average marks in a given paper. Eventually, of course, such teaching weakens the intellect and turns out a poor product. Its final results come out in later years. Immediate examination results from practical exercises are therefore not likely to be good.

Time.—Excellent results can be reached by rapid methods. Great accuracy and careful drawing are usually waste of time. A simple example: At the end of a lesson on African geography, give round two blank outline maps of Africa. Tell the class from memory to put in the equator, the two tropics, and to shade all land over 3000 feet in map 1; in map 2 to shade deserts by pencil, forest regions by ink lines. Time taken, less than ten minutes. Twenty-five sets can be corrected in a quarter of an hour.

By a proper system of co-ordination much geographical work could be done as part of the mathematical syllabus, *e.g.*, graphs could be given of geographical statistics which apply to the term's work in geography, problems on latitude and longitude,

time, altitude of the sun, relative positions of places by squared paper, by triangulation, &c.

Apparatus.—A geographical laboratory is the ideal for all schools. This ought to be managed by a specialist in geography. There would be several sets of simple apparatus, which could be sent round to any teacher in the school at a moment's notice.

It would be quite simple for the geographical organiser to arrange all the geographical work of the school so that each teacher could be sure of getting necessary apparatus when required. Geographical exercises for mathematical teachers could also be framed and sent out from the same source.

Electric lanterns in all class-rooms would, of course, be useful, but not all governing bodies will provide these. If there is no geographical laboratory, each teacher of geography *must* have certain apparatus in his room, or be able to borrow this easily.

J. FAIRGRIEVE, M.A.,

William Ellis School, Gospel Oak, N.W.

I BELIEVE in practical geography, with reservations; we all do in a sense, but it is a little difficult to say what practical geography really is, and it is partly because of this doubt that difficulties arise. Practical geography is a method rather than a series of exercises, and in particular it is a method of gaining information by other faculties than memory, so that the real important philosophy of geography may be understood.

The difficulty with geography—and history—as distinguished from the natural sciences is that the concrete objects of study are difficult to observe. No one can see the whole of an area of any size at once, and few can see the whole even by extensive travel, and yet we have to study and realise not only the appearances of things, but how these react on each other. Can we do this without practical geography? I think not. But one has to save minutes everywhere. One must do two or three, or, if possible, a dozen, things at once without appearing to do so; one must scrap pet exercises in favour of others which do more; one has no time to study physical geography apart from regional. The exercises must be ends in themselves, and yet carry on the argument. Above all, an exercise must be dropped the moment it has served its purpose.

Statistics must be used so that (1) pupils may gain familiarity with methods of arriving at geographical results; (2) they may know the relative value of results; (3) they may know where to turn for information; and (4) it may be impressed on them that all valuable results are obtained by putting together a multitude of details; but if statistics are used so that pupils are sick of them, or so that only the process is thought of and not the result, then one is not practical.

Enough observations—meteorological, solar, and botanical—should be taken as just to throw light on geographical conditions and methods; one does not wish to train astronomers, meteorologists, botanists, or surveyors. Models may be made so that not only may the result aid in visualising the relief of a par-

ticular country, but the pupils may learn what contour lines or sections are, and these may help in realising other maps; but one does not dream of turning the school into a model-factory. This would defeat the end in view; the pupils would think of the models and not of the actual country.

These are particular examples, but it is practical geography to use any methods—mapping, pictures (not too many, though carefully chosen), essays, discussions—by which the imagination is stimulated to realise geographical facts accurately. Further, the really important geographical facts must be realised, not only as results, but as the bases of very many other results. It is the neglect of this principle which in many cases makes the methods of practical geography appear of less value than mere memorising. One has to know how the multiplication table is constructed, but one learns it, and learns its value, only by use.

If sane practical geography does not pay in examinations then either there is something wrong with the examination, which is quite likely, or the teacher is losing sight of the end in the method.

CHARLES J. GRIST, M.A.

Headmaster, Tiffin Boys' School, Kingston-upon-Thames.

I AM of opinion that geography without practical work is of little value. To judge of it by the effects of the old-time geography, it makes the pupil geographically blind. The right solution of the present difficulties seems to lie in questioning (1) if some of the practical work now done in geography time is really geographical; (2) if syllabuses and time-tables ought not to be revised.

(1) Practical work in geography should be in the main observational; and since the ideal geographical laboratory will ever be out of doors, the most useful practical work will be done by encouraging pupils to observe when they are out of school hours. Our aim should be to enable the pupil to see the reality in descriptions of lands and peoples; to realise that the laws of land forms and climatic conditions are the same all the world over; to understand the geographical control of life and labour. I cannot help thinking there is sometimes a tendency to be doing work in geography time that ought to be labelled practical mathematics, practical physics, or practical botany. To take an example: a tendency to carry plane-tableing and contouring to excess, and to produce youthful surveyors rather than youthful geographers.

Young children are more observant than older ones. I would suggest that time could be saved by doing the practical work of weather instrument reading and sun's altitude reading in the lower forms. That the pupils are not of an age to cope with the mysteries of relative humidity and latitude is of no consequence. It is the method of science to accumulate facts before venturing upon theories and explanations.

(2) The question of time-tables and examination papers is urgent, and merits the serious and sympathetic co-operation of heads of schools and examiners.

ELLIS W. HEATON, B.Sc.,

Headmaster, Tynemouth Municipal High School.

GEOGRAPHY has grown from an obscure uninteresting preparation-task to be one of the most imperious of school subjects. Taught in an interesting way, it is many-sided, and offers many bypaths into which the teacher may wander, with the risk of eventually getting nowhere. It urgently needs delimiting in its own interest and on grounds of time and expense.

In small schools, where expense is a consideration, it might well form the core of a three-years' science course—*nature-study* in the wide sense of the term—which would include the elements of the physics and chemistry of air and water and observation lessons on plant and animal life. One laboratory would serve for the whole course. Stacks of reagents would be unnecessary—plain firm tables, with gas and water supply, and sinks let in, would serve admirably. Two periods of 1½ hours a week each would be ample for such a science course. In such schools descriptive geography could be correlated with the history course and taken by the history teacher; one period a week (45 minutes) would suffice for this. Regional geography of contrasted types could be used by the science teacher to illustrate his scientific principles.

In larger schools, where physics and chemistry are taught as formal subjects in well-equipped laboratories provided for the purpose, it should not be necessary to devote more than three periods a week to geography. The geography master, as such, should not *teach* the underlying principles of physics and chemistry and mathematics, but should *apply* these (acquired by the pupil in the science and mathematics classes) to his own particular set of problems. This involves consultation between the several masters concerned. The correlation necessary can be arranged and much time saved. Quite two-fifths of the work set out in practical geography text-books is pure science or mathematics. It is not out of place in the text-book, but it certainly is in the class-work, if physics and chemistry appear on the timetable as well. My experience offers the following possibilities:—

(a) *First Year Mathematics* can well run parallel with the elementary mathematical geography (distances, directions, areas, the globe, statistics) of the first year course.

(b) *First Year Physics* (measurements, pressure in air and water, heat and temperature, the thermometer, barometer, evaporation, and condensation) is excellent as a *preparation for the second year course of geography* (climate, rainfall, isotherms, isobars, isohyets, isohels, range of temperature). I do not, of course, mean that physics is to be taught for the sake of geography.

(c) *Second Year Physics* (harder work on air and water), combined with *chemistry* (air, water, carbon, chalk), provides the scientific groundwork for a systematic course in physical geography which should come as the third year's course, following on the two years' work in practical geography.

I would suggest that the chief work of the geographical laboratory should centre around:—

(1) *The Interpretation of Maps*.—Ordnance maps, networks, climatic maps, plotting, and other graphic representation of statistics.

(2) *The Making of Maps* by the boys to illustrate their reading or the oral lessons.

When a boy leaves school he should be able to tackle any map he meets with, and make an "idiomatic" translation. Not yet even have our boys gained sufficient facility with the atlas. One of the three periods should again be devoted to good descriptive geography, either by the history master, who should have a taste for geography, or the geography master, who should make a hobby of history.

The humanistic side of geography is, after all, the final aspect of geography, to which the scientific groundwork and map-reading are chiefly as means to an end; and it must not be sacrificed to examination-cram. The examinations are much more rational than in days gone by. It is quite possible to obtain a "good pass" in any of the school-leaving examinations by working to the syllabus along sound lines rather than by working closely to past papers. "Distinctions" should be reserved for such sound work. We look for the day when Civil Service and all similar tests will call for broad intelligent knowledge of principles and a rich world-picture rather than a harassing demand for unrelated details of little interest, which merely test a boy's acquaintance with out-of-the-way unimportant facts.

LL. RODWELL JONES, B.Sc.,

Lecturer-elect in Geography, Leeds University

WITH regard to the time which should be devoted to geography in the schools, I should suggest that two full hours weekly, or, better, three periods of 40-45 minutes, represent a minimum allowance for the whole subject, if any attention whatever is to be paid to practical work. This, however, will prove insufficient unless the work is properly organised by the head of the department in accordance with a very detailed syllabus drawn up for the whole school. The absence of such organisation leads to repetition and consequent slackening of interest. Schools exist where the same subject is presented by the same method, and with the same detail, to pupils in widely separate forms.

Enthusiasts show sometimes in their advocacy of practical work a lack of the sense of proportion, for a school cannot turn out competent surveyors and geologists, and it is well for it not to try. Sun altitude, temperature, pressure, and rainfall observations are essential, as are some excursions, but the latter may be taken on occasional half-holidays, and the former, if well distributed throughout the school and year, need take up far less time than the average text-book of practical geography suggests.

Plane table work and elementary contouring involve educational exercises, in that after such work the pupil more definitely associates his maps with their corresponding earth surfaces. But here there is seldom time for much individual work, or money for the several sets of apparatus such work demands.

Little is to be gained in practical work by repetition once the principle involved is mastered, and from my own experience I should say that we are liable to fall into one of two very different errors—the almost total neglect of practical work, or the making of such work an end in itself.

In geography it is essential that the human note be persistently emphasised, but the geographer's instrument is still the map, and preparatory practical exercises are essential if he is to use it rightly.

PROF. L. W. LYDE, M.A.,

Professor of Economic Geography, University College, London.

THE answer to your questions depends on what you mean by practical geography. Many teachers, unfortunately, mean by it arithmetical and other work which has no legitimate place in geography at all, still less in school geography.

Personally I make the words include three things:

- (1) The observational outdoor work by which the youngest class gets its basal geographical ideas;
- (2) The reproduction indoors, especially in model, of the forms thus observed out of doors; and
- (3) Such exercises and problems, especially for home-work, as are really geographical and suitable for school use.

As to (1), I know of no substitute for, or alternative to, this direct, personal observation of forms out of doors as the basis of fundamental ideas; it is done years before there should be any "examinations"; it needs little or no equipment, only access to out-of-door spaces.

This outdoor work, though absolutely essential as the source of basal ideas, is only inlook work; and the right object of school geography is outlook, not inlook. Therefore, it seems to me a waste of time to do any observational work unless it leads up, at once and directly, to reproductive work. The latter shows the teacher whether the class has observed satisfactorily, and it teaches the class to "picture" the forms they profess to have observed. It needs a little equipment, but can be done in the ordinary class-room; as it goes with the observational work, it does not overlap "examination" age; and it is the only guarantee of success in the examinations when they come. One dare not trust a child to picture the unseen until one has proved his power—as tested by reproducing—to picture the seen.

As to (3), the exercises and problems, so far as these are inlook work or of a non-geographical character, they are not only a waste of time, but also such a tax on the outlook-faculty as to handicap it intensely in its effort to synthesise and visualise the details of knowledge; and that must gravely prejudice the pupils in examinations—which is a trifle, except to the abused teachers—and in their power of taking a wide outlook, which is a terrible loss to the nation. On the other hand, if they are really geographical, they involve, e.g., the deduction of a geographical principle or the summarising of a geographical area or a set of phenomena; and pupils who have done such things for themselves have the

results so impressed on their memories that they face examination with equanimity—which is a trifle, except, again, so far as it is looked upon by outsiders as a proof that the teacher has done his or her best—and they make good citizens, which is what the democracy most needs. No special accommodation or equipment is involved; it is quite easy to arrange for the work, and to look it over; and it does not consume much time in school or out.

My own rule has always been that practical work, whether observational or reproductive or experimental, should decrease in importance with increase of age, and should be curtailed or dropped if, and as soon as, it begins to infringe on time wanted for outlook work or to impede the outlook faculty in its essential business of making mental pictures.

J. B. REYNOLDS, B.A.

THE amount of practical work that is possible to be done in classes preparing for examinations, under average conditions, seems to me extremely small. Rather more time can generally be devoted to practical work in the lower classes of secondary schools, but even here the knowledge of examinations to come sets a limit to the amount of time that can be given to work that counts for comparatively little from the usual examination point of view.

I think if secondary schools gave up the preparation for all junior standard examinations by an outside organisation, it would leave teachers a much freer hand in their geographical work, and be a more desirable change than for the bodies controlling these examinations to attempt to modify their syllabuses and examine practical work. In my opinion the best kind of practical work is the observational work done on geographical outings, and this must necessarily vary so much in different localities that it cannot be examined by an outside body, and any set syllabus for practical work, I fear, is more likely to hinder than aid it.

In advanced school examinations, however, I think more stress might advantageously be laid on testing pupils' powers of map-reading than is at present usual. This would encourage schools to obtain good maps and atlases illustrating various geographical distributions, and enable teachers to feel more justified in devoting time to teaching pupils how to gain information from these sources than is now general.

The proportion of time that teachers feel it desirable to spend in practical work other than that covered by map study, map exercises, and geographical excursions naturally depends on their conception of the chief functions of geography. Personally I feel it is more needed in schools as a "culture subject" for training imagination, giving a broad, accurate outlook on the world, and illustrating the interrelation between scientific and humanistic studies, than as simply a scientific subject treated to develop the same powers as other scientific subjects already included in the ordinary secondary-school curriculum. Hence, considering the limited amount of time to be given to the subject in most schools, I should not advocate a large proportion being devoted to experimental or

statistical work, nor do I think the creation of special laboratories necessary. Such practical work as elementary surveying, I think, too, should at present form the exception rather than the rule in ordinary schools, at least for girls. When the total amount of time devoted to geography is increased, then more can be done in this direction possibly, and there are hopeful signs that this increase of time is coming. The fact, for instance, that the Board of Education allows more freedom in the school curriculum than formerly, and that many secondary schools prepare pupils to enter elementary training colleges, for which geography has just been made a compulsory subject, is likely to lead to more attention being given to the subject.

HUGH RICHARDSON, M.A.,

Senior Science-master, Bootham School, York.

I TAKE it that the inner meaning of practical geography is the penetration of the scientific spirit into regions formerly occupied by verbalism and pedantry. It is all part of the great struggle towards reality, and away from mere words and symbols. The older geographies were mere words—lists of names without meanings. The atlas maps have often been mere symbols, that symbolise nothing to the child. The same struggle towards reality is seen in art, in literature, and in religion. Viewed in this light, it is not the geography that matters, it is the habit of mind, a determination to get into first-hand contact with facts.

That is why geography should begin at home, and why some of the earliest symbols used may represent in Chinese or Anglo-Saxon notation the street or village in which the child lives. The memory map of Europe and the diagrams of the solar system may be postponed. It is no use studying the relations of things before the real things are known. The actual use of thermometer and barometer may well be familiar years before isotherms and isobars are mentioned. In early years we need to see that names and mental images (take, for instance, "loam," "ecliptic," "equinox," "spring tide," "meridian") really do correspond with their corresponding realities. I would rather know the difference between jute and hemp than be able to give a list of towns engaged in the manufacture of each. It is better to know what imports look like on the landing quay than to plot statistics of their fluctuations.

If this method of really learning about real things cannot be managed in an hour a week, why not omit geography from the time-table altogether, and subscribe the hour for doing something else thoroughly, say domestic science? Geography scarcely seems to touch the instinctive interests of girls. Why not let them work at something which obviously does matter? We now see that just in the same kind of way that the scientific spirit has penetrated the teaching of geography, so, too, the scientific spirit is beginning to penetrate domestic life and all teaching of domestic arts.

The merit of geography as a school science subject is that much can be done with little equipment. Once

I had just a fortnight's notice from my headmaster that the school would be moved to Scarborough for the term, that there would be no laboratory, but that it would be a convenience if the science classes might go on as usual. Huxley's "Physiography" and the local ordnance survey maps provided a nucleus of ideas, inspiring in so great an opportunity of elaborating them. It is not indoor equipment that is most essential, but outdoor nature. And therefore it is just those schools that have no proper laboratories that may best choose geography as the medium for scientific education.

My own idea would be that outdoor and practical work ought to have a very large place in school teaching, especially in primary and preparatory schools, say up to age fifteen, after which age indoor problems on ordnance maps and statistics might be more highly developed. If this does not fit in with existing examinations, surely that is a reason for altering the examinations.

T. ALFORD SMITH, B.A.,

St. Dunstan's College, Catford, S.E.

At the present time, most teachers seem to agree that practical exercises in geography are not only of educational value, but that they also add considerable interest to the teaching of the subject. The relation of practical work to the ordinary geography course presents a real difficulty to many teachers, and an attempt is made in the following remarks to deal with some aspects of the difficulty. Boys who have reached the stage of specialisation in geography may work with advantage through a detailed course of practical exercises, but boys who have not reached that stage of specialisation, that is, boys in the middle forms of a school, should only do practical exercises to illustrate some particular point of the lesson. The practical work should not be treated as a separate branch of the subject, but should be correlated with the whole course.

Some teachers complain that the time assigned to geography, usually one and a half hours to two hours a week, is insufficient for the performance of practical exercises. The complaint is justified in the case of those who set their pupils to work steadily through long sets of exercises. A competent teacher, when considering the subject of his lesson, decides what points can be driven home best by means of such exercises, and he chooses those most suitable to his purpose. For example, in a lesson on finding latitude or in a lesson on the intensity of the sun's rays, the practical work required is the measurement of the altitude of the sun. A theodolite or sextant may be used, but in that case some time must be spent in explaining the instrument. For young boys the best method is by means of a shadow thrown on a horizontal plane by a vertical needle. To do this, a lesson should be chosen in which a map exercise or written work has to be done. The needle and table should be arranged beforehand in the sunlight; four or five minutes should be enough to explain the exercise to the form, thus leaving about forty minutes for the map exercise

or other work. While this is being done, each boy in turn finds the altitude of the sun by marking the height of the needle on one edge of a sheet of paper, the length of the shadow on another edge, joining the points and measuring the angle with a protractor. A boy can do this easily in one and a half minutes, and he has only spent this time out of the forty minutes given for the map; the one and a half minutes' work will, however, prove invaluable when in the next lesson the method of finding latitude is explained.

Again, percentage tables, density of population tables (area and population being given), &c., are often required in order that the facts may be represented diagrammatically. The time taken in such work may be economised greatly: (a) by accepting approximate results; (b) by division of labour. For example, in a lesson on the coal production of the world, the following facts would be given: total production is about 1050 million tons a year; of this the United States produces 400 million tons, United Kingdom 263, Germany 205—together with the quantities for ten or eleven other countries. When asked to make out a percentage table a boy should be encouraged to write down as many as possible without numerical calculation; in the case of the United States 38 or 39 per cent. (400 out of 1000 would be exactly 40 per cent.), United Kingdom 25 per cent., Germany 20 per cent., and so on. Where some calculation is necessary and the list is a long one, the items on the list should be divided among the form, so that each boy has two or three to work out. It is sheer waste of time for a boy to work out the whole list. As the results are read out a boy checks those he has worked himself and writes down the results for the other parts of the table. With practice such work takes very little time, and each boy is quickly provided with the data required for the diagram.

Assuming, then, that the practical work has been correlated with the other parts of the subject, the pupils should have gained their knowledge in an intelligent way, and this knowledge should be used with advantage in examination work. The lack of practical training perhaps accounts to some extent for the loose and inaccurate statements which constantly occur in examination answers. The following is a typical example: "As Great Britain now produces no wheat at all, we have to import wheat from Canada, the greatest wheat-producing country in the world."

Great Britain does produce wheat, about 30 million cwt. a year; Canada is only one of the countries from which we import wheat; and the production of wheat in Canada is exceeded by several other countries.

Many teachers also complain that, although they are anxious to do practical work, they have neither the accommodation nor the equipment necessary for it.

It is quite a mistake to think that expensive apparatus is necessary; some of the most successful work can be done with apparatus of the simplest kind. For example, if a barometer cannot be obtained for the geography room, why not ask the science master to fill a tube with mercury and invert it in a bowl of

mercury (these materials are provided in abundance for science work but not for geography)? Stand the bowl on the window-sill and fasten the tube very loosely to the wall. Place a centimetre ruler behind the tube and mark the height of the mercury in the tube from the surface in the bowl. From the readings at the end of a week or fortnight draw a graph and compare it with the graph drawn in the science laboratory for the same period.

A teacher who wants a particular piece of apparatus, not provided by the school, will often get help in this respect from an inspector. Inspectors, as a rule, are very sympathetic when they see teachers striving to do good work under difficult conditions, and a suggestion from one of them will frequently induce governors to grant what is required.

E. G. R. TAYLOR, B.Sc., F.R.MET.SOC.

THE question whether practical exercises should be included in the geography course admits of a very definite answer in the affirmative. Certain essential geographical principles can only be easily and thoroughly grasped with the help of such exercises. The teacher must therefore not hesitate to include them, regardless of the fact that they take up considerable time, and may not help the pupil to "score" in an examination paper set by the inefficient type of examiner who is greedy only for "facts."

Such necessary exercises I should group as follows :

1. A series of experiments with large and small globes, designed to solve the various problems arising from the fact that the earth is a rotating and revolving globe.
2. Such observational work in the field as shall enable the pupil to recognise the simpler land forms and understand how they were formed.
3. A series of contour map exercises, with section drawing and modelling designed to ensure that the contoured relief map is thoroughly understood.
4. The keeping of such records of the daily weather and of the sun's course in the heavens as shall ensure an observational basis for work on climate.
5. A series of statistical exercises designed to illustrate the quantitative basis of geography, and to enable the pupils to draw just inferences from statistical tables.

No geography syllabus could be considered complete which did not include exercises under each of the above headings.

Exercises in practical surveying and contouring fall in a different category. Cartography is not geography, but such exercises are valuable if only for the reason that children delight in them. The tactful geography teacher will entrust this work to his mathematical colleague. Similarly, he will suggest to the science master such excursions for the study of local plant ecology as will provide a basis for his lessons on climate, soil, and vegetation.

Not more than a quarter to one-third of the time at the teacher's disposal should be given to practical work. The greater part of the time should be used for oral class work based upon a good series of comparative wall-maps. But this side of geography teaching falls outside the scope of the present inquiry.

B. C. WALLIS, B.Sc., F.C.P.

Assistant-master, Holloway County Secondary School.

THIS question forms part of a much larger question: "What is the place of geography in the curriculum?" On the grounds that geography aims at the study of man and his present-day environment, and that the content of geography, more than that of any other school subject, impinges upon the life of the pupil after school is left, this subject is entitled to the third place, immediately after the purely equipment subjects—English language and mathematics. The reader should test this statement by asking himself the question in this way: "Either subject X or geography is to be taught, but not both; which shall it be?" Let him substitute in turn a foreign language, history, or physical science for X, and there can be little doubt that geography claims pride of place. Space does not permit the elaboration of the arguments or ideas which lead to this conclusion, and, for the same reason, little can be said in regard to the claims of geographical science—an extended geographical science—to be the one science studied in those schools where the time to be devoted to scientific studies is limited. It is possible to arrange a course of science which shall be experimental and heuristic, and, at the same time, be so predominantly geographical as to be included under that head in the curriculum.

The question of practical work also depends upon the teacher. Between the two extremes of the teacher who teaches physical science under the name of geography, as we taught physiography years ago, and the teacher who teaches history under the name of geography, there are all gradations. These extremes represent the world-old contrast between the realists and the verbalists, or humanists. Probably the best teacher of geography combines both elements, and, in so far as he is a realist and scientific, will use practical exercises, so that his practice is, perhaps, the most complete justification for the inclusion of such exercises in the geography course.

In this view there can be no doubt that geography should be taught, and that heuristic exercises in the class-room form a necessary part of the geographical training: and, to the degree that there be any truth in the objections levied against practical exercises that they yield unsatisfactory examination results, that the time allowance is insufficient, that local authorities will not provide apparatus and equipment; just to that extent does it devolve upon teachers of geography not to change their methods, but to insist upon changes in examinations and in administration which will allow them to teach the subject as it should be taught. They should refuse to enter pupils for the examination until the examiner takes note of the methods which they use; they should have more time if they need it—the need can only be determined by the individual teacher in his own school; they should have the apparatus which they require.

Perhaps something may be gained in connection with the time allowance if teachers will remember that once the pupils are familiar by use with the

principle embodied in any piece of geographical apparatus, such as the thermometer, or familiar with the data upon which geographical dicta are based, or familiar with the methods of making plans and maps of small regions, there is no geographical object to be gained by continuing the exercises which have given the familiarity. A thorough grounding in method and principles in the early years, sufficient careful preparation in the understanding of the language of geography, necessarily takes time, but the time so spent is more than made up by facility and accuracy in the later years. After a course of practical exercises the pupils can work so much more rapidly and can be so trusted to investigate matters for themselves that much more ground can be covered, and covered well, during the later years. Practical exercises, at first, should typify methods and illustrate principles; later they should aim at the study of regions and countries, and at this stage the work of a class need not be confined to one aspect of a country; the separate units of the class can be allowed to investigate separate departments for themselves, and the communication of their results to the whole class will suffice to teach the whole class the geography of the region studied. The pupils perform their own investigations quickly, and the class learns very rapidly.

E. A. WETHEY, M.A., F.R.G.S.,
Bradford Grammar School.

It all depends on what is meant by "exercises." If, for instance, they be in quantity and quality such as those prescribed by Prof. Emerson, of Missouri University—*vide* his "Manual of Physical Geography," published in 1909, and many other American authorities, then will the teacher with *one* hour a week for geography register a calamitous list of failures in any modern examination to which he may consign his charges, nor will his colleague of *two* hours fare much better. Such notions of exercises would make of geography purely a laboratory study.

If, however, the teacher's text-book (the boys scarcely require one at all) be of wider scope (*cf.* Simmons and Richardson, the pioneer book of modern geographical exercises in British schools, or Wallis, the latest exponent), then the case is different. There, too, however, unless the examining body, which is ultimately to test progress (and unfortunately the normal teacher is compelled to keep one eye on his examiner), frames a special paper or a special syllabus, the general examination results will be poor. For too much exercise work *may* (I do not say *will*; after all, the personal equation of the teacher is everything) have a cramping effect on the boy's general geography. It may—it does in some cases to my knowledge as an examiner—put on one side what many authorities to-day think should be the very first chord to strike in school geography—the *human* note. If a boy or girl is perpetually engaged in compiling graphs, calculating distances, estimating heights, tabulating records, and, in a word, "doing" exercises, it is possible that there may be failure to note what after all is the be-all and end-all of geography, *viz.*, the effect of these tabulated

phenomena on human life, and the interaction existing between man and his environment.

In medio tutissimus ibis may well be the answer to the editorial query. Practical exercises? Yes, by all means, but not too many and not too exclusively, and always with a view to cause and effect; above all, beware of making geography merely a laboratory study instead of one of the most humanly interesting and instructive of all class subjects.

ERNEST YOUNG, B.Sc.

Headmaster, the County School, Harrow.

If geography be a science, then it must certainly be taught in a practical way, as the result of experiments and measurements. We have to apply a modified form of heuristic treatment to the subject. The usual outcry is heard that there is not enough time and that the methods are ineffective for examination purposes.

The average time at the disposal of the teacher is perhaps only one and a half hours a week, and this is not much for the experimental treatment of so wide a subject. I think we must confess that some of the work must be done out of school hours and that we shall have to compromise as to the remainder.

Meteorological Work.—The instruments can be read by individuals in turn, during play hours; the readings can be plotted on large sheets and kept on the walls for reference. Each pupil will get some practical work, and all can observe the results obtained by the rest.

Astronomical Work, such as the altitude of the sun, &c., can be accomplished in the same way.

Surveying Work.—Alternate surveying and manual work until the boys can work without the immediate supervision of a master, and then get them to make plans of different areas and by different methods in their spare time. We have 170 Boy Scouts in this school, and they will all in turn try to get the surveyor's badge. This they will do in their half-holidays—as a game!

Regional Geography.—If we look at the exercises set out in "The Geography of the British Isles," by Dr. Morley Davies (Macmillan), or in "The World," by Mr. B. C. Wallis (Macmillan), we must come to the conclusion that the school life is not long enough to perform them all. It is here that we have to compromise. The old lecture method must still find a place in our class-rooms, and the working of exercises dealing with statistics, measurements on maps, and so on, must be so arranged that in the course of a few years at school, the pupil works some of every important type, though he will not work every one of them in connection with any particular region.

The value of practical work from the point of view of the external examination I have had little opportunity of testing. Its value in stimulating interest and thought on the part of the pupil is unquestioned by those who have had much experience of its methods.

Practical outdoor work costs money, though those teachers who are skilful with their hands or who have sympathetic manual instructors in their schools seem

to be able to make wonderful apparatus out of odds and ends. I have heard of a teacher who cannot afford a chain, but does his work with a piece of rope. Indoor work of the laboratory type, say as to the distribution of the wheat lands, or the relief of the surface of any area, demands only the ordinary atlases and the collection and classification of data and maps as they are published from time to time in papers. Expensive works of reference are now scarcely necessary in view of the fact that so many modern text-books have extracted from the reference works just those facts and figures that the teacher needs for exercises of the kind we have in view.

THE SECOND INTERNATIONAL MORAL EDUCATION CONGRESS.

THE second International Moral Education Congress is to be held at The Hague, in the Royal Zoological and Botanical Gardens, on August 22 and the following days. It is under the distinguished patronage of H.M. the Queen-Mother of the Netherlands, and the honorary president is H.R.H. Prince Henry of the Netherlands, Duke of Mecklenburg, &c. Among the patrons are the Ministers of Education of most of the European countries, including our own. The members and delegates will be welcomed by the Hague Town Council at the opening reception.

The basis on which the congress has been organised is that it will not advocate the views of any society or party, but will afford to all who are interested in moral education, whatever their religious or ethical conviction, nationality, and point of view, an *equal* opportunity of expressing their opinions and comparing them with those of others.

The Netherlands Committee, by whom the congress is being organised, hopes to be able to provide opportunities for visiting educational institutions and other places of interest; this committee is being assisted by committees the list of which is a sure indication that the congress is to be truly international. There is a committee in each of the countries of Europe, and in British India, the Indies, Japan, Surinam, and the United States of America.

The programme provides for the discussion of moral education and character-building from different points of view, of physical training as a means to character-building, of moral education in all kinds of institutions from primary schools to military schools, and of the education of abnormal children. The preliminary list of papers now issued contains the names of some 150 contributors from Australia, Austria, Belgium, British India—in fact, from all over the world. Among those from India are "Some Aspects of Moral Instruction in Indian Schools," by H. J. Bhabha, and "The Gurukula System of Character-building, or the Ancient System of Developing Character under the Guidance of Great Teachers," by Kalyandas Jekisondas Desai. Egypt is represented by Abdul Baha Abbas, while France contributes papers by M. Boutroux and many other noted men of all shades of opinion. Other famous contributors are Dr. Rudolph Penzig, Lieut.-General Sir R. S. Baden

Powell, Prof. Mackenzie, Mrs. Mumford, Dr. Sadler, Dr. J. Th. Mouton, M. van Sandick, Dr. Foerster, and Prof. Felix Adler.

Among the members of the English committee are Profs. Adams, Adamson, Archer, Green, Muirhead, Sadler, Westermark, and Mark Wright, the Revs. W. Copeland Bowie, Dr. Gow, Canon Swallow and Canon Glazebrook, Sir Edward Busk, Dr. Nunn, Mrs. Bryant and Mrs. Miall Smith, Misses Margaret Tuke, Alice Woods, and M. S. Young, Messrs. Cloudesley Brereton, J. H. Cowham, Gould, Holman, Litt, Johnson, Loring, Keatinge, Nicholls, Russell, Spiller, and J. Martin White. The honorary secretary is Mr. Fred Charles, of Strand School, King's College, W.C., from whom all particulars can be obtained.

HISTORY AND CURRENT EVENTS.

HISTORY and current events have come into startling collision lately in the House of Commons. The question of disestablishment of the National Church never but once in our history came into prominence before the nineteenth century, and that was when Oliver Cromwell saved the Church-State threatened by some of the extreme members of the Little Parliament. But disendowment of "the Church" has happened more than once, to say nothing of periods when it was advocated. The author (or shall we say one of the authors) of "Piers Plowman" spoke of Church endowment as "poison," and prescribed a purge. Henry V. disendowed "alien" priories. Henry VIII. disendowed them all with much else, and Edward VI.'s tutors and governors completed what the father had begun. Seventeenth-century puritans only followed their example; and it is not fifty years ago that part of the United Church of England and Ireland was partly disendowed as well as disestablished. Now it is proposed to disestablish and disendow another part. And the memories of sixteenth-century events have been recalled by way of comparison or contrast in the directions to which the property went or (it is proposed) shall go.

AFTER ten years of bereavement, Venice is again in possession of her Campanile. Some of our readers may perhaps remember how it fell into shapeless ruin one summer's day, and how legend began to grow, encircling the event with the supernatural, almost immediately. And now all Italy, people as nation, people as Church, have been stirred with deepest emotion at the inauguration of the restored bell tower. We in England, with our colder temperament, can scarcely realise what we are therefore tempted to call the childlike, if not childish, delight with which the Italian people, from King and Pope (the latter a Venetian) downwards, have heard in reality or in imagination the old bells ring out again from their age-long position. The Campanile is at the same time part of the Cathedral of St. Mark, and apart from it. It is Venetian, and it is of the Church. That is why the recent ceremony drew Pope and King together, and why to the regret of some it has not drawn them still closer.

IN the middle of April Londoners and others had an opportunity of observing under favourable conditions an almost total eclipse of the sun, an event which is not common enough to be passed by as a matter of no interest. The history of eclipses and of human thought about them is an interesting study, but we mention them just now to direct attention to a special instance of their usefulness. Our readers are doubtless aware that the chronology inserted in the margin of the "Authorised Version" of the Bible is now discredited; and they may also know that scholars can make no consistent chronology out of the dates given in the Book of Kings. They fall back, therefore, on Assyrian and Babylonian inscriptions. These are contemporary documents, and give the sequence of events in due order. But how to correlate them with the dates of our own calendar? After a long period of ignorance, light came from a total eclipse recorded as occurring in a certain year. Historians appealed to the astronomers, told them the approximate date, and asked for exactness. So perfect is the science of astronomy that the answer could be given, the day and year fixed when in the eighth century B.C. such an eclipse took place, and Biblical chronology began to be correct.

MANY have been the founders of cities, both legendary and historical—from the days of Nimrod the mighty hunter, of Romulus, or Athene, down to our own days, when in new lands, in favourable circumstances, cities have sprung up like Jonah's gourd, "the son of a night," and while some have perished, like that gourd, others have survived and had a history. Perhaps the most famous of cities thus founded is the Alexandria near the mouth of the Nile, which preserves the memory of the Macedonian "son of Ammon," and we might mention the Alexandria of North Italy, founded by Pope Alexander III. The latest example of cities thus founded is perhaps the port of Karachi, on the north-west coast of India, the growth of which from a tiny village to a flourishing seaport is due to the activity of Sir Bartle Frere. He developed not only the city, but its hinterland, and the result is that Sind is a great wheat-growing country, exporting its produce through Karachi until the town threatens to be a rival to Bombay.

ITEMS OF INTEREST.

GENERAL.

MR. LLOYD GEORGE has recently received two deputations from teachers, and to both has promised substantial help from the Treasury; on May 9th he received representatives of the secondary- and technical-school teachers, and on May 13th of the elementary-school teachers. The former had a somewhat difficult task, for the point of principle has never before been recognised by the Treasury, viz., that teachers in secondary schools should receive State aid towards their retiring allowances. Mr. Arthur Acland put the request on the part of the teachers as a *minimum* pension of £100 a year, and asked the Government to contribute towards it £1 a year for each year of recorded service. The Chancellor frankly recognised the claim of those who work in State-aided schools,

and said that he would find the money to meet substantially their claims; with regard to other classes of teachers, for instance, those in the remaining efficient schools and those in the private schools, he should like time to consider—he was not prepared to commit himself at present. The question in the case of the elementary-school teachers was one of amount only, for the Act of 1898 gave them State pensions, poor though they were. Mr. Lloyd George agreed to double the amount of the Government's contribution, that is, to give them £1 a year for each year of recorded service instead of 10s., as formerly. This, together with the annuity purchased by the teacher's own contributions, will bring the retiring allowance of an elementary-school teacher up to about £70 a year.

THE second reading of the Education (School Attendance) Bill was passed by a good majority on April 26. The discussion showed a wide diversity of opinion as to the wisdom of the "half-time" system. Sir William Anson appears to see some good in it. He is reported to have said that a child is better morally and physically for taking a reasonable share in the practical work of life. Most educationists, however, desire to see the years of childhood freed of any necessity to assist in the business of bread-winning. The Bill provides that no child shall be allowed to leave school below the age of thirteen, with the proviso that if a child leaves school between the ages of thirteen and fourteen it shall only do so on condition that it is to enter into beneficial employment. Every care will have to be taken in interpreting the proviso, if the Bill becomes an Act. Blind-alley employment has already been responsible for too much misery later in life to desire any possibility of its encouragement. We welcome any reasonable means of prolonging the years at school, and "half-timers" should be discouraged alike in town and country.

"HIGHER education is not for those who have the purse to afford it, but for those who have the brains to profit by it," was the text of Mr. Paton's address to a recent meeting of the Association of Head-teachers held in Manchester. If this *obiter dictum* were generally admitted, the real improvement of our national education would not be long delayed. But there is much work to be done before Mr. Paton's will be the universal opinion. Amplifying his views, Mr. Paton suggested that in elementary schools there should be a bifurcation above the fourth standard, at about the age of ten, and that the pupil with brains should be passed on to the secondary school thus early so that he might have the opportunity of becoming acclimatised early enough to secure the benefits that secondary education is able to confer. If the transfer is postponed, and the elementary-school pupil enters the secondary school later with no linguistic, scientific, and other attainments, he is very unlikely, with so much leeway to make up, ever to enter into the corporate life of the secondary school.

THE proprietors of *The Bioscope* are arranging an invitation demonstration to be given at Cinema House, Oxford Street, London, on Saturday, June 15th, to

show the educational uses of the kinematograph as an "animated text-book." Tickets of admission may be obtained on application to the proprietors of *The Bioscope*, 85 Shaftesbury Avenue, London, W. We are informed that many educationists have announced their intention of being present, and it seems certain that teachers who attend will secure many useful hints on the instructive aspects of kinematograph exhibitions.

A SCHOLARSHIP of £35 for one year is offered for the course of scientific instruction in hygiene at the Bedford College for Women beginning in October, 1912. The scholar, who must hold a degree, or an equivalent certificate, will be required either to take the full diploma course at Bedford College, or to pursue some special line of investigation in cognate subjects, under the supervision of the lecturer in hygiene. Names of intending candidates, with particulars of previous study, should be forwarded, not later than July 1st, to the principal, Bedford College, from whom further particulars may be obtained.

THE members of the Parents' National Educational Union, who met at Winchester to celebrate the coming-of-age of the Parents' Union School, must have felt that to hold such a gathering without Miss Mason was like Hamlet without the Prince of Denmark. Lady Northesk presided at the opening meeting, when Lady Campbell spoke on the work and the principles of the union. The union, she said, stands for the principle that character is everything, and that the two main functions of education are the presentation of ideas and the formation of habit. The central principle is that a religious basis of work must be maintained, and from that flows all the other principles. Some two hundred and fifty of the children belonging to the school had a series of lessons each morning given by students trained by Miss Mason at Ambleside, most of whom are working as governesses in private families. The second day opened with a service in the Cathedral, when a special address was given by the Dean. After the morning's lessons the children sang folk-songs and gave an exhibition of country and Morris dancing, conducted by Miss Evans, co-principal of the Parents' Union School. One of the prettiest sights of the whole gathering was the historical dress party on Wednesday afternoon. The invitation made some form of historical dress, however simple, compulsory for children; for adults it was optional. Another important feature was the exhibition of handicrafts, nature-study note books, &c.

At the quarterly meeting of the Moral Education League, held at the Royal Society of Arts on May 3rd, Mr. F. J. Gould, the league's demonstrator, presented for consideration a scheme for the correlation of school subjects of instruction with a view to character training. The correlation scheme presented is not intended for adoption in its printed form. Basing the school teaching on the general plan of human evolution, it recognises the principle that the child psychology approximately follows the psychology of the race. Younger pupils should therefore have all their lessons associated with antiquity—Greeks, Romans, Hebrews

—with the corresponding environment, scenery, myths, fairy-tales, &c.; and the incidental moral elements scattered through these subjects should be gathered up for the illustration of the direct ethical instruction of that stage. The second stage should cover the period of the Middle Ages and the centuries ensuing until about the year 1700. The third stage (adapted to the age of thirteen upwards) should culminate in the world geography and the moral outlook associated with the brotherhood of man. Such a scheme is to meet the need, felt by children as well as by adults, for constructive thought and method. The time is approaching, said Mr. Gould, when the various activities and studies of the school must not only be correlated, they must be correlated for a living and abiding purpose, and that purpose is the training of the young personality in the service of the larger life. A copy of the scheme will be sent to any reader on receipt of a postcard addressed to the Moral Education League, 6 York Buildings, Adelphi, London, W.C.

THE Board of Education has published a list of thirty-eight holiday courses in modern languages which will be held at different times during the present year, but mostly in the summer months. Seven of the courses are in German-speaking countries, viz., at Freiburg in Breisgau, Greifswald, Jena, Marburg, Salzburg, Lübeck, and Kaiserlautern; 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 Rams-gate; and the rest in France, at Besançon, Dijon, Grenoble, Nancy, Boulogne, Bayeux, Granville, Caen, Honfleur, Lisieux, Paris, Rouen, St. Servan-St. Malo, St. Valery-sur-Somme, Tours, Trouville, Versailles, and Villerville. 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. This paper is no longer distributed gratuitously, and copies (price 2d., by post 2½d.) can be obtained direct from Messrs. Wyman and Sons, Ltd., Fetter Lane, London, E.C., or through any bookseller.

A REPORT on vacation schools and organised vacation play has been presented to the Education Committee of the London County Council and published. Open-air vacation schools were held during a fortnight last summer in Victoria Park and in Battersea Park, and in a garden lent by the Duke of Bedford. Nature-study and manual work were prominent features of the occupations of the children. The report suggests that twenty such schools be established in 1912, and that, by arranging for half the children in the morning and half in the afternoon for the first fortnight, and *vice versa* for the second fortnight, the total of 24,000 children who need such schools can be accommodated at an estimated cost of £3,300. In twenty-six cases the playgrounds were used for five days a week for four weeks from 10.30 to 12, 2.30 to 4.30 p.m., and from 5.30 to 7 p.m. Each of these play centres was under the supervision of a superintendent, usually a teacher, and the total attendance

amounted to 424,000. For 1912 the suggestion is fifty vacation playgrounds, at a cost of £25 each. Time-tables and other details are published in this useful report, which can be obtained from Messrs. P. S. King and Son, Great Smith Street, Victoria Street, S.W.

THE annual report of the Medical Officer (Education) of the London County Council for last year (vol. iii., Public Health, P. S. King and Son, 2s. 6d., post free 3s.) shows that the amount of work demanded of the department has necessitated an increase of the staff to 114 doctors, including 18 women, as compared with the 84 doctors, of whom 14 were women, employed during 1910. On the basis of the figures for the last two years, it is estimated that the number of London school children who will be selected as requiring medical treatment during 1912, after careful examination, will be some sixty-five thousand out of two hundred and ten thousand—practically one-third of all the children examined. Of all the causes of ill-health, disease of the teeth continues to furnish the largest number of cases, and is from many points of view the most serious; it is at once the most important and the most difficult to cope with under existing conditions. The futility of depending upon such aid as the hospitals—already overworked—can give in these cases has been abundantly proved. On the other hand, a free dental clinic, opened as a part of his dispensary work by Dr. Kirby in January, 1910, and now subsidised by the Council at the usual hospital rate, has achieved a notable success.

DR. KERR believes that it is now possible to outline a scheme for dental provision, towards which to work, practical in its methods and administration, and at the same time economical. . . . "There is no way of dealing with money in the interests of public health which will return so enormous a gain to the population for the same small expense required as this matter of school dentistry"; for it is the only practical way of meeting a widely spread evil which affects the working capacity and even the earnings of large numbers of people. Lack of personal cleanliness amongst the children is mostly traceable to overcrowding; and this, again, is often the result of crude attempts to economise warmth in the "home," even when accommodation is not absolutely limited to the space, or to the beds, occupied by the family. A very pleasant form of education known as "School Journeys" is becoming popular; the question as to how far these are suitable for children of poor physique and ill-nourished has been investigated by Dr. Clive Riviere, who found that the boys did best who had spent a "rambling holiday" at the seaside: they gained in weight.

WE have received the report of the annual meeting of the Société d'Échange International, held in Paris last March. The secretary was able to give an excellent account of the work done in 1911, no fewer than 560 exchanges having been effected. Of these, 184 were exchanges between France and Germany, 86 between France and England, 4 between France and Spain, and 6 between England and Germany. The scheme is admirable, and fully deserves the grants it

receives from various French chambers of commerce, the city of Paris, &c. The offices of the Société are at 36, Boulevard Magenta, Paris. A similar work is done by the English Modern Language Association. It is much to be desired that teachers of French and German should interest the parents of their pupils in this exchange of children; we have heard of many cases in which English boys and girls have made remarkable progress in foreign languages by spending their holidays in a carefully chosen family in France or Germany.

ADVANCE sheets of the New Zealand Official Year Book for 1911 are to hand. They contain summary results of the recent census. Particulars are given for the different New Zealand counties of (i) the numbers of farm animals; (ii) the acreage under crops, grass, &c.; (iii) European population. For the first time, the European population of New Zealand has reached a million, of whom the males are more numerous than the females. The most noteworthy results of the census are twofold: first, the continuation of the decrease, either absolutely or relatively, in the population of the mining districts; and, secondly, the continued influx to the cities. The mines are now run by companies, and are worked by machinery; the days of the alluvial digger, who worked for himself, are past, hence the decrease. Auckland contains 10 per cent., Wellington 7 per cent., Christchurch 8 per cent., Dunedin 6 per cent. of the population, so that nearly one-third of the people inhabit the four chief cities. Invercargill, Timaru, Palmerston North, Wanganui, and Napier each contain 1 per cent. of the population. Lists are given of many of the smaller centres of population, and from these it appears that the people of New Zealand are strung in nuclei along the coast lines or along the railway lines. The county of Eden has an area of 43 square miles, and includes the city of Auckland with a population of 40,000, the suburbs of Auckland with 62,000 people, and an extra-urban population of 23,000, so that there are 125,000 people in the county with a density of, roughly, 3,000 per square mile; the average density for the Dominion is 10 per square mile.

THE sixth annual report of the president and treasurer of the Carnegie Foundation for the Advancement of Teaching (1911) deals largely with pensions. Much is made of the moral aspect of pensions: first, of the moral obligation on the foundations to provide an adequate pension for their time-worn servants; secondly, of the immorality of retaining at work old teachers who are past rendering adequate service, because this is the only way in which a pension can be given; and, thirdly, of the moral value of an assured pension to the teachers themselves. From the same source we find that nine American teachers have exchanged with seven Prussian teachers during the current year. American exchange teachers give pleasant accounts of their residence and work in Germany.

SOME interesting facts are obtained from the above report regarding schools in the separate American States. The school year varies from 98 days in two

States to 194 days in one State, with an average for all the States of about 150 days. Of the children between five and eighteen years, one State enrolls 46 per cent., two States enrol from 90 to 94 per cent., while the average is between 70 and 80 per cent. Expenditure per capita varies from 4 to 8 shillings in seven States to 32 to 36 shillings in three States, with an average somewhere between 12 and 24 shillings.

The History Teachers' Magazine, founded two years ago in Philadelphia, U.S.A., as a private venture, by the McKinley Publishing Company, has now been adopted by the American Historical Association as its official organ. Under a strong editorial board, of which Prof. Henry Johnson is chairman, it is now able to deal in a more authoritative manner than hitherto with all matters of current historical interest. It keeps in touch with the English Historical Association, gives reports of its annual meetings, and notices its publications. In the May number the article of greatest interest to English readers is one by Prof. C. M. Andrews, of Yale, on "London Topography." Other leading articles are "History as a Teacher," by Prof. G. L. Burr, of Cornell; "The Execution of Louis XVI.," by Dr. E. F. Henderson, illustrated by a curious contemporary German engraving; and "The Certification of Teachers in History," by Dr. David Snedden. Particulars are given also of the numerous history courses arranged for the forthcoming summer schools in America.

The annual conference of the Association of Headmistresses will be held on June 14th and 15th at St. Paul's Girls' School, Brook Green, London. The president of the association, Miss Douglas, Godolphin School, Salisbury, will take the chair.

The summer meeting of the Association of Assistant-mistresses will be held, by permission of the council and headmistress, at the Queen's School, Chester, on Saturday, June 22nd.

SCOTTISH.

A DEPUTATION representing the Educational Institute of Scotland met by appointment with Lord Pentland and presented him with an address on the occasion of his resignation of the Scottish Secretaryship after a tenure of six years of office. The address, which was presented by Dr. Alex. Morgan, president, congratulated Lord Pentland on placing on the statute book the Education Act of 1908, a legislative measure of prime importance, the far-reaching effects of which are only now being fully appreciated. Hearty acknowledgment was also made of the deep interest taken by his Lordship in all that concerns the personal and professional interests of teachers, particularly in regard to improved conditions of service in the matter of tenure and pensions. In reply, Lord Pentland thanked the members of the institute for their generous recognition of any services he had been able to give. He bore witness to the value of the communications he had received from the Institute on various questions, and said that many of the most useful provisions of the Education Act of 1908 were due to the suggestion and the support of the teaching profession.

ALTHOUGH a large percentage of the arts students in Scottish universities are preparing for the teaching profession, no provisions have yet been made for instituting special courses for them leading to a distinctive degree in education. The younger universities of England have made tentative steps in this direction, but one has to look to France, Germany, and the United States for a broad and enlightened conception of the duties of the universities to the teaching profession. It is not too much to say that the great attention devoted to educational research and to the investigation of educational problems by the universities has profoundly influenced the educational policy in these countries. Edinburgh University has at last awakened to its duty and responsibility in this connection, and the University Council has unanimously approved of a proposal to establish a post-graduate degree in education which, on the analogy of the existing degrees of Bachelor of Divinity (B.D.) and Bachelor of Laws (LL.B.), might be called the degree of Bachelor of Education (B.E.). The teaching power required for nearly the whole of the suggested curriculum for this degree is already provided by the University, and consequently little expense would be occasioned by the adoption of the proposal. As the Scottish universities are strongly imitative in their policy, it may confidently be assumed that the good example set by the premier university will soon be followed by the others.

REFERENCE was made in last month's items to the action of the Carnegie Trust in confining its benefits to students who had obtained the leaving certificate of the Scotch Education Department (save in exceptional circumstances approved by the Trust). The Council of Aberdeen University had this question before it at its last meeting, and a vigorous protest was made against the slight thus cast upon the official examination of the universities themselves. The regulation, it was declared, was the result of collusion between the Trust and the Scottish Education Department, who were constantly seeking to lay their deadening hand on university administration. The Higher Education Committee of the Educational Institute has also expressed disapproval of the regulation. While it is recognised that it would tend to enhance the value of the school-leaving certificate and of the secondary schools, the committee does not think it would be in the interests of their pupils or of that large body of pupils who have never had the opportunity of obtaining a leaving certificate.

At the statutory half-yearly meeting of the Glasgow University Council, the Rev. Dr. Smith, reporting on behalf of the business committee, said that the proposals of the Treasury in regard to an inclusive fee for all students represented a direct interference with the autonomy of the universities such as had never before been attempted. His committee was strongly of opinion that Parliament alone had the power to interfere in the internal administration of the universities, and he asked the council to homologate this view. Dr. R. A. Duff moved that the council approves of the institution of a uniform fee for all arts students,

and sought to justify the action of the Treasury in this matter on the ground that it was in the interests of the students, who would thereby be able to take more than the minimum number of classes required for the degree. Sir David McVail, in supporting the position of the business committee, said that if the present minimum course was regarded as insufficient, then the right course was to come forward with a motion to have it increased. If it was sufficient, then no good purpose was served by making the student pay for classes that he was not likely to take, nor to benefit from if taken. Eventually the proposals of the business committee were approved by a considerable majority.

A GOOD deal of adverse criticism has been directed in recent weeks by School Boards against the products of the training colleges. Much of this is misinformed and prejudiced, but there can be no doubt that enough remains of enlightened and well-intentioned criticism to call for the serious consideration of the responsible authorities. There is a feeling abroad that the training of teachers is directed on theoretical and doctrinaire lines without any due regard to the actual conditions of the schools. In teaching, as in most other things, an ounce of practice is worth a pound of theory, and the question arises whether there is not too much talking about education and not enough practice of it. The question, however, is an extremely difficult one, and can only be solved by the goodwill and hearty co-operation of all concerned. The time, indeed, seems to have come for setting up a strong commission, representative of the Education Department, the training authorities, School Boards, and teachers, to investigate the whole question and suggest improvements.

IRISH.

THE Department of Agriculture and Technical Instruction announces summer courses of instruction for teachers to be held in Dublin during July and August. The courses in July will be: (1) in experimental science and in drawing and modelling; (2) in domestic economy and in manual training (woodwork); (3) in office routine and business methods; (4) in advanced cookery, in housewifery, and in hygiene and sick nursing; and (5) in Carrickmacross lace-making, crochet work, embroidery, and sprigging; and the courses in August will be: (1) in practical mathematics and mechanics, in handrailing, and in manual training, and (2) in rural science, including school gardening. Teachers attending the courses will be allowed £3 10s. towards their expenses while living at the centre. The science courses will be in the first year of the preliminary course, and the third and fourth year courses in physics, chemistry, mechanics, botany, physiology and hygiene, and physical and commercial geography.

THERE will also be special summer courses in July for members of enclosed religious orders held by expert instructors in different convents, all expenses incurred by teachers attending them being defrayed by the authorities of the convents in which they teach. These courses will be in experimental science (cover-

ing the work of the courses of all the four years), in drawing and modelling, and in domestic economy.

THE Department's *Journal* for April of this year deals principally with agricultural matters. There is, however, an interesting article on technical instruction in Limerick by the principal of the school, Mr. J. Comerton. This article, which is fully illustrated, is the twelfth of a series dealing with some recently established technical schools in Ireland. In the case of the Limerick school the buildings are entirely new. The department has also issued in a separate illustrated pamphlet the programme for the session 1912-13 of the Irish Training School of Domestic Economy, which is situated at St. Kevin's Park, Kilmacud, Stillorgan, co. Dublin.

AN article on the National University of Ireland in the *London Times* shows the "significant increase in the number of students seeking university education since its establishment." In University College, Dublin, the number in 1909-10 was 527, and in 1912 is 755; in University College, Cork, the average number in the years 1898-1908 was 216, and in 1912 the number is 425; and in University College, Galway, the average number in the years 1898-1908 was 105, and in 1912 the number is 155. St. Patrick's College, Maynooth, having been recognised by the Senate of the University as a constituent college in 1910, has 240 students, making the total number of students in the University during the current year about 1600. The prospects of the National University are at the present time conditioned by two factors. First of all, after some hesitation the Senate has made Irish a compulsory subject at matriculation. This would appear at first sight to be likely to lessen the number of students entering the University, but there is another factor, which is that most of the county councils, in striking a rate for university scholarships, have adopted conditions making them tenable only at the National University, and this, it is calculated, will mean an indirect income to it of £12,000 a year. The chief difficulty in the working of the University is that which belongs naturally to a federal system. The three colleges lie at considerable distances from one another, and the slightest modification of rules, regulations, or courses entails much unnecessary expense and delay. In consequence there is already a movement tending to break up the federal arrangement into separate universities, a movement favoured by Cork, but opposed by Galway, which does not at present feel itself strong enough to stand alone.

THE colleges of the National University have issued betimes their calendars for the session 1912-13. The University College, Dublin, issues two pamphlets, one containing the general regulations as to scholarships, class fees, &c., and the other dealing with the different faculties of arts, philosophy, and Celtic studies. The University College, Cork, issues a single document containing the regulations and courses for the session 1912-13.

THE movement in favour of Irish has affected also the Queen's University, Belfast. The Senate has

agreed to a proposal that the lectureship in Celtic should be converted into a professorship. It has also amended the regulations for the matriculation examination for 1913, and has agreed to the following: (1) That there should be in future no age limit for matriculation; (2) that the books prescribed by the Intermediate Education Board for the middle grade be accepted as options in English, Greek, Latin, French, German, and Irish; and (3) that there should be an oral examination in Greek, Latin, French, German, and Celtic, but that this examination should be optional, extra marks, however, being given for proficiency therein.

WELSH.

THE secretary to the Welsh Department of the Board of Education, Mr. A. T. Davies, in a speech at the Ceiriog Memorial Institute at Glynceiriog, addressed himself to the subject of the revival of village life in Wales. This institute, which is a club-house, library, and meeting place for the villagers, has received numerous works of art and memorials of great Welshmen, and has lately had further artistic gifts presented to it. Mr. Davies referred to the success of the library, and suggested the formation of an amateur dramatic society for the presentation of Welsh plays, to be performed by the villagers themselves. He mentioned that the Chancellor of the Exchequer had been so much impressed by the Ceiriog Institute that he desired to establish a similar institute in his own village. This Memorial Institute bids fair to become a model to others. Another speaker suggested that a case in the institute should contain examples of beautiful wallpapers, beautiful fabrics for curtains, &c. Another recently built institute is that provided for Machynlleth by Mr. David Davies, the old Welsh Parliament House. The adaptation of the old historic building and the excellent arrangements of the new buildings supply a delightful centre of social and literary activity.

PRINCIPAL ROBERTS, of the University College of Wales, at the meeting of the Court of Governors of the college, held at the Owen Glyndwr Institute, Machynlleth, a month ago, directed attention to the intellectual possibilities of such an institute. By connection with the University College at Aberystwyth, Machynlleth has already to some extent provided for instruction by the travelling dairy and cookery schools, work which will now be taken over by the permanent technical schools on the spot. The higher standards of the elementary school are to have added on to them the practical teaching required by the conditions of the district. A scheme is at work in the county whereby a practical course is provided in agriculture and other subjects, such as the chemistry of dyeing woollen fabrics. It is further highly to be desired that the splendid buildings of the institute should be used for the new tutorial classes and courses of university extension lectures. It is by growing facilities of this kind that institutes in the towns and villages of Wales may hope to lead the way to intellectual, artistic, and social progress in small places as well as in the larger centres.

THE North Wales Mathematical Association is fulfilling a most useful function. It has just called together and held a conference of teachers of all grades to discuss the great changes which have recently taken place in the methods of teaching mathematics, with a view to the consideration of the results of various experiences, and in the hope that such a discussion may lead to a better understanding between teachers of all grades, and to some extent remove the anomalies arising from a diversity of methods of treatment. This conference, the first representative gathering of the kind ever held in North Wales, took place in the University College, Bangor. The subjects dealt with were: (1) the continuity of the teaching between the primary and the secondary schools; (2) the nature and amount of mathematics to be taught in the new central schools; (3) the continuity of the teaching between the secondary schools and the universities, including (a) the higher mathematics in the secondary schools, (b) the place of mechanics in the curriculum of the secondary schools.

PROF. BRYAN, the chairman, pointed out that mathematics do not play the important part in the social, political, and economical life of this country that they ought to play. Yet it is manifest that statistics enter largely into present-day politics, and that these must be based on mathematics, so that their rightful study becomes, to some degree, a part of the citizen's training. Prof. Bryan emphasised the point that continuity of purpose does not mean uniformity of method. One point was particularly dwelt upon in the discussion, viz., the statement that the thoroughness which characterised the teaching in elementary schools twenty years ago is "somewhat lacking to-day." And the reason was made quite clear. Previously, elementary-school children were confined to the study of fewer subjects, but were required to do those thoroughly. Thoroughness is the great need for the basis of such subjects as are to have continuous study through all the grades. The conclusion seems to be that it would be well to have at least a sprinkling of some of the best mathematicians trying their hand at elementary-school teaching.

THE council of the Welsh National Museum has received the offer from H.M. Treasury of a largely increased grant in aid of the building on certain conditions. The grant in aid of maintenance has been increased from £2,000 to £3,000. The model of the new museum buildings has been placed in a room of Westminster Hall. The museum authorities are working in connection with certain societies to make the museum available for usefulness. Thus the museum will co-operate with the Cambrian Archaeological Association so as to organise a temporary museum in connection with the forthcoming conference in Cardiff. The photographic section of the Cardiff Naturalists' Society has undertaken to assist in forming a photographic record of Wales to be deposited in the National Museum. It has also been decided to purchase a number of photographs of interesting places and objects in Wales taken by the

photographer to the Welsh Commission for the Preservation of Ancient Monuments. Mr. McKenna, in reply to a question in the House of Commons, has stated that the amount which is proposed to be given to the Welsh Museum under the Established Church (Wales) Bill will be under £3,000 a year.

THE PHYSICAL TRAINING OF GIRLS.

Athletic Training for Girls. Compiled and edited by C. E. Thomas. 216 pp. Illustrated. (Pitman.) 3s. 6d. net.

THE term "training" is here used, not merely in its more limited sense of preparing the individual for undertaking strenuous exercise, but deals also with the physical training provided by the more active forms of games and gymnastic exercises. The several chapters, each dealing with its own subject or game, have been written by specially qualified authorities, and the result is a text-book which should be welcomed as a useful addition to the library of every girls' school.

The short chapters on training and on costumes for games are eminently sensible and to the point. That on gymnastics treats the subject as well perhaps as it is possible to deal with it by the merely printed word. It is necessarily more explanatory than directly instructive, but its teaching should serve to awaken and stimulate the student's intelligent interest, and thus serve to make the task of the teacher more easily productive of the desired results.

The gymnasium itself is rather too much taken for granted, as is, indeed, too often the case. For their own sakes, and with the object of enlisting their co-operation in securing the best possible results, the pupils themselves should be made to realise from the beginning that, if these formal bodily exercises cannot be carried out in the open air, they should at the least be practised in a suitable building which is so constructed and arranged as to be always sufficiently aerated—not merely "ventilated" in the popular sense of that often abused term—thoroughly well lighted, and kept scrupulously free of dust, to say nothing of the grosser dirt. To this end, careful arrangements and the strict observance of rules with regard to suitable footwear and clothes generally (and the changing of these in the dressing-rooms and not in the gymnasium itself) are absolutely necessary. Modern panegyrist of the healthy and well-proportioned physique attained by the gymnasts of ancient Greece are too apt to overlook the significance of the fact that the very name implied that their exercises were undertaken *en plein air*, and unclothed.

The largest section of the book is devoted to hockey, which receives unstinted praise. When all has been said that can be said in its favour, the fact nevertheless remains that it is a game which only a very small minority of girls can play with impunity; and we note with satisfaction that several of the larger and more wisely conducted schools for girls have quite recently given it up. To begin with, the actual strain involved during play is greater than that entailed by football—although this fact is seldom recognised—and every physician experienced in these matters is familiar with cases in which he is compelled to forbid the continuance of this form of exercise in consequence of results more or less serious entailed by it. Again, the number of good players in any school is seldom more than the total needed to complete a team, and, should one or more of these be temporarily indisposed, mere *esprit de corps* on her part (occasionally some less worthy form of compulsion) will induce her to take her place in the field in circumstances which should forbid her playing at

all. Serious results of various kinds are thus induced with a frequency too great to be ignored.

Chapter xvii. gives a description of a number of indoor games with their rules, and the final chapter collates the practice obtaining in a large number of girls' schools in regard to the physical training and athletic exercises which they severally favour.

The book is well and clearly written, and well printed in clear type on thick paper. Its attractiveness is not enhanced by the page of advertisement bound up at the end of each section.

SCHOOLS AND SCHOLARS.

(1) *Problems of Boy Life.* Edited by J. H. Whitehouse, M.P. 342 pp. (King.) 10s. 6d. net.

(2) *Education for Citizenship.* By Dr. G. Kerschensteiner. Translated by A. J. Pressland. 133 pp. (Harrap.) 2s. 6d. net.

(3) *Outlines of School Administration.* By A. C. Perry. 452 pp. (Macmillan.) 6s. net.

(4) *The School.* By J. J. Findlay. 256 pp. (Williams and Norgate.) 1s. net.

(5) *Memories of a School Inspector.* By A. J. Swinburne. 274 pp. (London Agents: McDougall.) 2s. 6d. net.

(6) *Thoughts on Education from Matthew Arnold.* Edited by L. Huxley. 292 pp. (Smith, Elder.) 5s. net.

As befits its many-sided subject, the volume entitled "Problems of Boy Life" (1) is one of very composite authorship, the writer of each chapter being able to speak with special authority on its theme. In an introductory note, the Bishop of Hereford refers to the recent stirring of the public conscience to a sense of the dangers involved in the overcrowded and squalid life of the working multitudes in our great cities, and this book sets forth the views of informed and thoughtful men as to the reforms urgently needed in the upbringing of boys belonging to the class in question. The problems of boy labour occupy several chapters, and subsequent chapters are devoted to such topics as the boy criminal, the station lounge, the street trader, children's care committees, and homes for working boys. Mr. Paton writes with characteristic vigour and suggestiveness on "Cross-fertilisation in Schools," whilst Mr. T. C. Horsfall gives an admirable account of Dr. Kerschensteiner's system of education in Munich. The whole volume is both timely and valuable, and we trust that its comparatively high price will not prevent it from falling into the hands of the right people.

Readers who desire still further knowledge of the unique and important work of the Director of Education at Munich than is afforded by Mr. Horsfall's chapter above referred to will be glad to learn that Dr. Kerschensteiner's essay on "Staatsbürgerliche Erziehung der Deutschen Jugend" has been translated into English, appearing under the title "Education for Citizenship" (2). The value of the author's theoretical exposition of the subject of continuation schools lies in the fact that it is the work of a successful practical administrator who has actually done the things that he recommends. The book sounds a note of warning against founding a system of continuation schools upon a too narrowly utilitarian, or "trade," basis. To make the continuation-school course simply a training for a trade is to cultivate the spirit of selfishness, and to miss the golden opportunity of training for citizenship. True, says the author in effect, on the principle that of psychological necessity altruistic motives must be developed from the more primitive egoistic motives, trade requirements must form the foundation; but

the whole edifice should show much more than this. Practical trade instruction should broaden out into industrial history, and the scientific consideration of materials and tools; in the maintenance of discipline, self-government should, as befits the stage of adolescence and early manhood, be extended to the farthest possible limits; and hygiene and gymnastics should figure prominently in the curriculum. These are a few of the suggestions worked out by the author, who, moreover, shows himself thoroughly alive to the difficulties of small towns and of country districts. We regard this book as exceedingly important, especially in view of probable developments in English education, and we are inclined to endorse Mr. Sadler's opinion that the book will be "a landmark in the history of education."

Dr. Perry's book (3) is concerned in a more general sense with problems of administration, which are dealt with in an academic rather than a strictly practical spirit. The book brings together in convenient form a large amount of information. As examples of its utility, we may instance the diagrams showing the connection (where any exists) between the primary and secondary systems of various countries, and the diagram showing the numerical proportions of men and women teachers in the chief civilised States.

It is no doubt all to the good that the popular "Home University Library" should include a volume on Education and the School (4). The work has been entrusted to the capable hands of Prof. Findlay. The subject is a vast one for so small a volume, and no two men would use the allotted space in the same kind of way. The professional student who is not already acquainted with Prof. Findlay's views will find them conveniently brought together here, but whether the book will attract "the general reader" to the study of education is perhaps more open to doubt.

The successive appearance of Mr. Sneyd-Kynnersley's "H.M.I.," of Mr. Holmes's "What is and what might be," and now of Mr. A. J. Swinburne's "Memories" (5), seems to indicate that it is becoming a fashion for ex-inspectors to tell the public what they really think, when at last the official muzzle has been removed. The fashion seems to us not a bad one, if only because the future historian of education in this country will be the better able to give life and colour to his account of the period to which these reflections and reminiscences relate. Taking the title of his book in any strict sense, we must regard many of Mr. Swinburne's pages as irrelevant: they record adventures which might just as well have happened in the career of a commercial traveller or of a Methodist minister. But he gives us many excellent stories about teachers and children and school managers, and some of his references to persons in higher places have a piquant flavour. The book will be read with great interest by many people connected in one way or another with our elementary schools.

In the volume entitled "Thoughts on Education" (6) we have, of course, a far more serious legacy of educational thought, from a great man of letters who by an irony of fate became a school inspector. Arnold's "Reports" are already available in a handy form, but some of his best things on education are to be found here and there in his other writings, and it is well that these passages should be brought together in one volume. In this way they will reach many persons whom they would not have reached otherwise. The passages are arranged in chronological order, and are selected from Arnold's reports on foreign educational systems, from his reports on elementary schools, and from some of his essays in literary criticism. The editor seems to us to have performed his task most judiciously.

SHAKESPEARE BOOKS.

(1) *The Tudor Shakespeare (Plays)*. Edited by W. A. Neilson and A. H. Thorndike. (Macmillan.) 1s. net.

(2) *Hamlet, Coriolanus, Twelfth Night*. Edited by G. S. Gordon. 400 pp. (Oxford Press.) 2s. 6d.

(3) *Chief Elizabethan Drama, excluding Shakespeare*. Edited by W. A. Neilson. 880 pp. (Cassell.) 10s. 6d.

(4) *The Countess of Pembroke's Arcadia*. Edited by A. Feuillerat. 570 pp. (Cambridge University Press.) 4s. 6d. net.

THE Tudor Shakespeare (1), eight plays of which are sent us, is delightful in size and shape, and contains good, scholarly, and outspoken introductions, *Macbeth* deserves a longer preface, and a general critical introduction to the series would be welcome. It is not generally realised even by Shakespeare students how the poet has blackened a character for all time; and the few touches in the play that admit that *Macbeth* deserved some friends and Banquo deserved and had some enemies are generally overlooked by critics. The introductions lay great stress on the power of Shakespeare to see all round a character. *Coriolanus* and Sir Toby Belch are admirable instances.

A school edition of three plays bound together (2) is noticeable chiefly for its introduction, which is modern in turn and frankly new in such subjects as Shakespeare's heroines and his power or want of power in characterisation. Many times this magazine has directed attention to the new note in the editions of the poet; 1912 is sitting in judgment on 1612. Is 1912 likely to do justice to *Coriolanus*, or even to Shakespeare? Mr. Gordon tries to do both.

Another edition equally good in type and size is the Granta Shakespeare edited by J. H. Lobban, and published by the Cambridge University Press (1s. net). The introductions are not so long as in the Tudor Shakespeare, but are very fresh. The new editor turns his back on Gervinus and Schlegel, and consults Hudson, Masefield, and Bernard Shaw. Shakespearean content varies with the centuries.

One of the editors of the Tudor Shakespeare has also edited the "Chief Elizabethan Drama, excluding Shakespeare" (3). This has been done two or three times, and the attempt is always welcome. As a rule, people do not know that first-class work in play and sonnet is to be found outside the magic name. One may quarrel with his selection of plays, of course; Marlowe is represented by four, Ben Jonson by four, Beaumont and Fletcher by four, and Tourneur by none; where, in any of the plays, is there anything to equal the fifth act of Webster's "White Devil"? The book is an admirable shelf book for the student; it has a few necessary notes, a bibliography and brief biographical notices. There is, even now, plenty of room for reprints of great plays; many cannot be got outside the expensive Dodsley or the Mermaid or Dick's penny editions. If Shakespeare's throne is to be at all challenged let us have texts to judge by, and nobody need object to necessary expurgations. While we reprint *ad nauseam* it is not an easy thing to get a cheap representative library of English literature.

Sir Philip Sidney's *Arcadia* (4) has also been reprinted more than once, but never, we think, in so complete a form; the editor intends to follow on with Sidney's other works. It is a question likely to be debated in the next fifty years whether or no the *Arcadia* does not fall into the category of books which might be judged by long quotations. This is not heretical, for the mass to be read grows year by year. Is the *Arcadia* as valuable to English literature as North's Plutarch or Lyly's *Euphues*; both long books? Besides, when is Castiglione's *Courtier* by Hoby going to be brought before the student? This is a forgotten book of immense importance.

CELTIC MYTHS.

Myths and Legends of the Celtic Race. By T. W. Rolleston. 458 pp. With 64 full-page illustrations. (Harrap.) 7s. 6d. net.

MR. ROLLESTON begins his book by a sketch of Celtic history, and some philological discussions. In these he is likely to confuse English readers by using *j* for the sound of *y* (p. 32), which only German philologists do, and they are foolish to do it. They will not like to read here that the Germans were probably a subject-people under Celtic dominion in Gaul and Ireland.

Mr. Rolleston knows that the Celts were fair, yet the more Celtic parts of our population are dark; he does not explain this, but something ought surely to have been said of the pre-Celtic black race, which was driven into the hills and deserts. It is possible this race may be the same as the pre-Greek, and it may be from them we get our imaginative strain rather than from the Celts. At any rate, the Celts in Ireland preserved learning and culture for 500 years from destruction.

In describing the Celtic religion, Mr. Rolleston says that dolmens are believed to have been once covered with earth; he might have referred to one that still is so, in the isle of Anglesey—a very remarkable specimen, clearly a house, with an approach, like the beehive tombs in miniature. This chapter, with its pictures and descriptions of carvings, and its modern parallels to worship, is interesting, though the author is a little too ready to suggest far-fetched comparisons.

The early myths of Ireland follow, drawn from the old Irish literature: first those relating to the Irish invasion, then those of the early kings, then the Ultonian cycle, the Ossianic cycle, the voyage of Maeldun, and myths and tales of the Cymry. Genealogical tables, glossary, and index complete the book.

The story is told connectedly, as far as possible, and interspersed with extracts from stories, poems, and modern parallels in ritual. Some of the pictures are beautiful; they are Celtic in scheme and not over-elaborated, like Mr. Rackham's; they suit the subject well. Take, for instance, Midir and Etain (p. 162), the Curse of Macha (p. 178), or Emer (p. 228). There is a great mass of matter in this book, and it is full of fairyland and the light of ancient days, a book neither shallow nor pedantic, and on a subject most of us know nothing about. We wish it all success, as it deserves, and we hope that many parents will be wise enough to choose it for a gift instead of golliwogs and Omar Khayyáms. And yet, good as it is, how much more we delight when we turn from the last chapter to the Mabinogion!

RECENT SCHOOL BOOKS AND APPARATUS.

Modern Languages.

L. Halévy, Noiraud, Guignol, et Deux Cyclones. Edited by W. M. Poole and E. L. Lassimonne. 91 pp. (Murray.) 1s. 6d.—The editors of the "Lectures Scolaires Supérieures" are to be congratulated on the inclusion of these three short stories in their useful series. The general principle is again observed: each page of text is faced by ten questions on the text and ten on grammar, and at the end of the book there are notes (in French), explaining unusual words. The text is well and clearly printed, and the exercises are very good indeed. Now and then the questions have puzzled us; for instance, "Il a dû se tromper = Il—trompé." The only misprint we have noticed is *goutelettes* on p. 17.

Erckmann-Chatrian, La Montre du Doyen; Le Vieux Tailleur. Edited by T. H. Burtenshaw. 110 pp. (Longmans.) Teachers' edition, 1s.; pupils' edition, 9d.—These are two excellent stories. The editor supplies notes (in English), exercises (words and sentences for retranslation), recapitulatory exercises (passages for retranslation), a French-English vocabulary, and, in the teachers' edition, a supplement containing the translation of the exercises and additional notes. All these appear to have been prepared very carefully, and teachers who make much use of translation in the intermediate stage of instruction will find this volume very acceptable.

Lectures et Exercices, Cours Supérieur. Edited by F. M. S. Batchelor. vii+142 pp. (Black.) 2s.—These chapters on French life and history from 1804 have been chosen by Mr. Kirkman, the excellent general editor of Black's Reform French Series, and the book makes a very good reader for pupils of senior examination standard. In our opinion, however, the military element is too much in evidence, and aspects of the social life of the people have been neglected. At the end of each chapter are some notes on the subject-matter, and the last forty pages contain exercises on the text by Miss Batchelor, which greatly enhance the value of the book. There are a few illustrations of pictures, not all equally well reproduced. We have noted a few misprints: *forces* (ch. ii., l. 15), *inhabilité* (p. 13, note 4), *même* (ch. v., l. 15), *murs* (ch. vi., l. 16), *digne* (ch. ix., l. 66), *la reste* (ch. x., l. 118), *première* (ch. xiv., l. 17), *naïvement* (ch. xv., l. 150), *rhythmée* (ch. xv., l. 280), *poète* (ch. xvii., l. 46), *ntaional* (ch. xvii., l. 134), *Buxhoewaden* (twice on p. 108), *qui doivent pas* (p. 141).

A. Dumas, Napoléon à l'île d'Elbe. Edited by C. Saunois. 40 pp. (Blackie.) 4d.—Miss Saunois provides a very brief account of Dumas, notes (mainly in French) in explanation of the text, and some retranslation exercises, the English of which is sometimes a little unnatural. The text, which also includes the *Rentrée de Napoléon à Paris*, will interest a middle form. It is well printed, but not quite free from slips—e.g., *règnante* (p. 12, l. 20), *eût* (p. 18, l. 27), *put* (p. 19, l. 28), *heurs* (p. 25, l. 5), *eût* (p. 29, l. 11), *près* (p. 33, l. 9).

Examples and Exercises in English for Foreign Students. By Wilfrid C. Thorley. 63 pp. (Macmillan.) 9d.—A convenient supplement and sequel to the same author's "Primer of English for Foreign Students." The sentences exemplifying various meanings and uses of the same word will be found particularly useful. The spelling reformer will welcome the verses in which Mr. Thorley grows sarcastic at the vagaries of our present spelling.

French Composition, Papers Set at Civil Service Examinations. Edited by H. N. Adair. vii+126 pp. (Bell.) 1s. 6d.—The passages set for French composition at various Civil Service examinations during the last ten years have been reprinted in a convenient form, and usefully furnished with brief notes. Candidates for these examinations, and their teachers, will be glad to have this book.

The Passing of Babel. By B. Long. 69 pp. (British Esperanto Association.) 6d. net.—A good account of the origin and spread of Esperanto, with a clear statement of the Esperantist's ambitions. In spite of the author's evident enthusiasm and eloquence we are not convinced by the arguments against English as the language of international communication.

Classics.

Rome. By W. Warde Fowler. 256 pp. (Home University Library.) (Williams and Norgate.) 1s. net.—The Romans were not an imaginative people, as Mr. Warde Fowler reminds us in this book; but to interpret the Roman spirit needs imagination, and this he supplies in plenty. We do not mean Mr. Ferrero's imagination, which carries him off to fairyland, but that which understands. There is an example in the very first pages, where the Roman caution is set against Sertorius's life of adventure, and Sertorius is tacitly compared to our Drakes and Raleighs. So in what follows, while the facts of Roman history are sketched in outline, it is the psychology that attracts our author, and will benefit the reader. The Roman character, which is in many points like our own ideal, offers many points also in which we might follow them with advantage; chief of these to-day is their respect for discipline and order. We recommend to our legislators the consideration of the Roman female riots, and the warning of Gracchus's robbing of hen-roosts; their view of the value of heredity, so different from the silly nonsense talked to-day. Rome at her best was an aristocratic republic, her upper house an assemblage of kings. The story is brought down to the Antonines; but the last paragraph points out that we still enjoy the fruits of Rome's work. So we take leave of an admirable book, which we recommend to readers above many more pretentious.

Greek Tragedy. By J. T. Sheppard. vi+160 pp. (Cambridge University Press.) 1s. net.—This is one of the "Cambridge Manuals of Science and Literature." Mr. Sheppard, after sketching their origins, takes the three chief dramatists in turn, and discusses their genius and the plots of their chief plays. Most of what he says is reasonable and judicious. In discussing the Persians, he seems to lose sight of the meaning of the play for Athens; we doubt whether the Athenians would have realised the tragedy of Xerxes. There was something tragic in the story of Philip and Mary, but an English play on the Spaniards would have called up quite other thoughts. We do not see his conception of the Prometheus clearly, nor can we agree that Zeus is to "learn by suffering." In his criticism of Euripides, amidst much that is just, we meet with sentences like this: "Phædra . . . worse indeed than Potiphar's wife, since her passion was for her stepson." He can scarcely have read the play attentively if he does not see that there is a world between Phædra and Potiphar's wife. The impression the book leaves is that the author wants a little more experience of life.

Isocrates, Cyprian Orations: Evagoras, Ad Nicoclem, Nicocles aut Cyprii. Edited, with introduction and notes, by E. S. Forster. 160 pp. (Clarendon Press.) 3s. 6d.—It must be admitted that Isocrates is dull, at least by the side of Demosthenes or even Lysias; the reason is that he is artificial, a stylist, a student, not an orator, a sort of Greek—we had almost added a name here, but readers can put in their own choice; several would fit. We think, therefore, that for the schoolboy, or the ordinary undergraduate, he is not well suited; why read the second-rate when one can read the first-rate in plenty? If, however, he wants to read Isocrates, here is a useful and scholarly edition to hand, the first in English, we believe. Another thing shows that this is not a schoolboy's book: the full English analysis; there is also too much translation, as usual. But for the lonely student, or for the undergraduate who wants to get at the heart

of Isocrates (if he had a heart), this book will prove the companion he wants.

Senior Latin Course. By A. J. F. Collins and A. Robinson. x+340 pp., with vocabulary. (Clive, Tutorial Press.) 3s. 6d.—This is a stepping-stone to the Cambridge Senior Locals, which sufficiently indicates its plan. First come a year's lessons, forty-eight in number, each with one exercise (sentences, Latin and English); next, the accidence and syntax are tabulated; lastly, there are forty-three passages for translation into Latin prose. The pupil is supposed to know no Latin when he begins; the words he is to be exercised in are chosen from the declensions in order, without regard to their meaning; take, e.g., this sentence in ex. 1, "taurus malus baculo tunditur," and ask what reference it has to anything that is likely to happen to anyone. We see no reason to doubt that this book will bring the pupil to the goal he has in view; but that serves to throw up into prominence how unworthy a goal is the Cambridge Senior Local. The Pharisees keep the keys of knowledge; they will not enter in, nor will they let others enter.

Kallistratus. By A. H. Gilkes. 182 pp. (Frowde.) 3s. 6d. net.—This is a new edition of a book which has won favour with many readers. It is worth reprinting: unlike most "classical" stories, it is pleasantly readable, although the sentiment is rather modern than Roman. The picture of Hannibal is good.

English.

Poetry and Life Series. Lowell, Coleridge, Shelley, Burns, Matthew Arnold, Gray. By W. H. Hudson. Varying from 100 to 150 pp. (Harrap.) 10d. each.—This series is entirely on right lines; and as no one will question Mr. Hudson's position as a critic, we confine ourselves to a word or two on the idea that is at the back of the little books. They give just enough about the life and doings of the writers dealt with: they quote large swaths of poetry, discenda, which are enough to guide and interest the student; the criticism is not too vague, and the verses lie by its side to show where the critical note is struck. The editor is quite right in saying that this is in the nature of a new departure; it is all the more important that the books should be of first-class use. Now Mr. Hudson has written an introduction to the study of literature, a book of 400 pages, the first two chapters of which are given up to "some ways of studying literature." It is a condensation of these chapters which, in small print, might, we think, form the preface to each of these little volumes. Students, as a rule, do not know what criticism is, how valuable and how valueless it can be, and on what principles it is based, if it is based on any. In regard to these volumes, the only points to be noticed are the weak or insufficient treatment of the "Prometheus Unbound" and the "Ancient Mariner." Most critics shun these masterpieces; but they are the key to Shelley and Coleridge, and they deserve all the light which can be directed on them.

On the Trail of Hiawatha. By Members of the Staff of the Seymour Park Infants' School, Stretford. 204 pp. (Manchester: Thomas Hope.)—No price is quoted in this admirable volume; but if, as we judge, it is a half-crown book, it will by its very suggestiveness be a good half-crown's worth for the teacher of the small child. Its pictures and photographs, and its easily copiable drawings, make it an ideal book. It contains sixty lessons, each lesson demanding thought. Oral composition, handwork, drawing—both from copy and imagination—are continually

used, and all the lessons have been tried. That little children, and indeed that the great majority of teachers and pupils in elementary schools, like Hiawatha is strange, but it is a fact; it is the verse equivalent to the past prose favourite, "Robinson Crusoe." There is really no limit to the method outlined in this book: all the minor arts of child life come into play. We wonder sometimes that teachers who can teach in this way do not protest against the undoing of their work in higher classes, for Egeria's work among older children is rare. Beginning so well, why do we end so badly? Self-help, home help, imagination, finger-deftness, speech, are all cultivated in this volume. It should be read with the "Dramatic Method in Teaching," by Miss Finlay Jackson.

The Gorilla Hunters, and seven other volumes belonging to Chambers's standard authors. (Chambers.) Cloth, 8d. each.—These books are of differing length, but of the same shape, and in their respectable blue covers they form an excellent library for children. The "Gorilla Hunters," "Martin Rattler," "Dog Crusoe," and the "Red Eric" are by the once more popular Ballantyne; "Old Jack" by W. H. Kingston; "The Last of the Mohicans" by Cooper; and to these are added "The Vicar of Wakefield" and "Silas Marner." All are edited for school use, and each contains an illustration: they form model reading books. Of course, George Eliot and Goldsmith will not always please where Cooper and Ballantyne do; but here the teacher's judgment comes in. If such reading books are now coming into schools, and are used well, the next generation should profit: but the italics convey the doubt.

English Exercises for Intermediate Classes. By E. B. Bruce. (Blackie.) 8d.—Miss Bruce explains that this collection of English exercises is meant to save the time of the teacher and to provide suitable examination practice for pupils of from thirteen to fifteen years of age. We fully agree with her, and are sure that many teachers will be glad to have in their hands a series of tests which are of an essentially literary character.

The Model Classbooks of English. By F. W. Chambers and A. J. Ker. In five books, each with a Companion Teachers' Book. (Blackie.) 3d. and 1s.—So far as the pupil is concerned, these books belong to a now familiar type, which endeavours to give children the power of accurate expression, chiefly on the foundation of oral, and afterwards of written, composition. The present authors have undoubtedly graded their work very skilfully. The teachers' books are detailed notes on the several lessons, and supply many hints and useful additional exercises. It should be added that most of the exercises are set out of a short extract, which is meant to serve as a sort of "model" and to act as a potent literary influence. Without insisting overmuch on this special claim, we think that as a systematic introduction to English studies the scheme here presented to us has much to recommend it.

History.

The Making of London. By Sir Laurence Gomme. 255 pp. (Clarendon Press.) 3s. 6d. net.—There is, or was lately, a school of historians the extreme position of which was that our civilisation is Roman, superimposed on the Britons, that this civilisation remained throughout the Anglo-Saxon period, and that the Normans freed the Britons from the barbaric yoke. That opinion is not held now by any scholar of repute, but Sir Laurence Gomme still holds it to be true of London. History is silent as to the city from

the time of the Romans to that of Alfred, and many have been the conjectures to fill the blank. Sir Laurence believes he has proved from archaeological finds, from topography, from institutions which "survived," and from other considerations that London had a continuous existence as a relic of the Roman Empire during all these centuries, and that her peculiar position in the kingdom and her privileges can be explained only by this hypothesis. In his preface to this book he says he "does not attempt to present an argument, but merely states a case." Whatever the reader may think of the hypothesis, he will find here a lively and interesting account of much in the history of the city, especially down to Tudor times, accompanied with a profusion of photographic and other illustrations, and with an index.

The Restoration and the Revolution. By A. Hassall. xx+220 pp. (Rivingtons.) 2s. 6d.—Reviewers of previous books by Mr. Hassall have complained of want of accuracy. He has determined this time to be accurate, and to prove that quality by reference to his authorities. The book abounds with sentences in inverted commas, sometimes of importance, sometimes not. To some of these, he adds the source in a footnote, giving even, over and over again, the name and locality of the publishers and the date. (Once, at least, he is his own authority for the quotation.) Indeed, he has kept so closely to his sources that the book gives the impression of being merely his notes written out at length. Repetitions are frequent, e.g., three times in thirteen lines on p. 126 we are told that in 1690 the "crisis (or the situation) was serious." The consequence is that, though the book is on the whole correct, and little is omitted of the story from 1660-1715, there is no view of events as a whole, and it is difficult and sometimes tiresome reading, whereas if Mr. Hassall had digested and assimilated his wealth of material he might have written a readable story instead of a series of detached annals.

An Industrial and Social History of England. By G. Collar. 283 pp. (Pitman.) 2s.—An interesting and pleasantly told introduction to the subject indicated in the title, with many photographic and other illustrations. On these, however, we have a comment to make. Some of them are taken from models of machines and are somewhat misleading, and there is a curious specimen of confusion of thought on p. 87. On the opposite page (86) the author speaks quite rightly of the "King's beam," or official balance in markets, but the picture is that of a Nonconformist place of worship, erected many years ago on the site of an ancient weigh-house, and since acquired and pulled down by the Metropolitan Railway. The funds thus obtained by the Congregational Church which owned the building were used to erect another chapel in a district of London which may fairly be described as "in Mayfair," the new building being totally unlike the old one. Yet the photograph is described as "The King's Weigh House in Mayfair."

The Story of Nelson. By H. F. B. Wheeler. 256 pp. (Harrap.) 3s. 6d. net.—Title and cover led us to expect a story-book. But this is a serious life of Nelson, the man and the naval commander, told in much detail as to the fighting and with sufficient as to the doings at the Neapolitan Court and Lady Hamilton. There is much quotation from Nelson's own correspondence and other writings, as well as a number of good pictures. It is thus a desirable book, which could not have been written until recent years.

The Story of the Empire. By G. T. Hankin. xii+326 pp. (Murray.) 2s. 6d.—This is the third volume of the series of Empire text-books written for the League of the Empire, and is intended for the middle forms of secondary schools and other pupils of similar age. The most prominent feature of the book is its obvious moderation of thought and fairness of expression with reference to present-day problems. It is altogether an excellent account of the Empire, historical and otherwise. No better book on the subject could be put into the hands of our pupils. There are many illustrations but no index. Should not the heading, "The British Empire," on p. vii. be "The British Isles"?

Canada. By B. Horne. 96 pp. (Black.) 1s. 6d. net.—This is one of the "Peeps at History" only, and much must not therefore be expected. What there is is pleasantly told, and illustrated with eight full-page pictures in colour and twenty small sketches in the text. The story begins with the French period, and is continued to modern times.

Elizabethan Adventurers upon the Spanish Main. By A. M. Hyamson. 399 pp. (Routledge.) 3s. 6d.—When we say that the stories in this book are "adapted from Hakluyt" we can give no higher praise. Here are four hundred pages and eight full-page plates to delight a boy's heart, with the advantage that he will not have to unlearn any of it in later years.

Our National Story. Book IV. 224 pp. (Nisbet.) 1s. 4d.—This is a good reader, covering the whole of our history, but the best feature is the abundance and variety of the pictorial illustrations, some of them in colour. Photographs of objects found below the surface and of parts of the Bayeux tapestry at one end of the book, and at the other of airships and aëroplanes, will give the fortunate youngsters who get this book a vivid idea of the changes wrought in nineteen centuries.

Historical Poems and Ballads. 112 pp. (McDougal's Educational Co.) 6d.—Poems illustrative of British history of all times, with brief explanatory notes. It should be useful as a fund of pieces for recitation, and in general to illustrate the history lesson.

Mathematics.

Analytic Geometry of Three Dimensions. By G. Salmon. Revised by R. A. P. Rogers. Fifth edition. Vol. i. xxii+470 pp. (Longmans.) 9s.—This new edition of one of the mathematical classics preserves the essential features of the previous issues, but contains numerous and important additions. Instead of being contained in one volume, the matter is distributed over two, of which this first contains the theory of quadrics, the general theory of surfaces and of curves, and developables. Of the additions may be mentioned those on Fiedler's projective co-ordinates, the non-Euclidean theory of distance and angle, the Frenet-Serret formulæ, the application of Gauss's parameters to conformal representation, geodesic curvature and torsion, and Staude's constructions for confocal quadrics. A defect in the older editions has been remedied by the addition of a considerable number of examples, many of them worked.

An Elementary Treatise on Statics. By S. L. Loney. viii+393 pp. (Cambridge University Press.) 12s.—This, a companion volume to the treatise on dynamics, contains such parts of the subject as are required by students who are reading for a degree in science or engineering, or for the more elementary papers in examinations for mathematical honours. It is rather the fashion nowadays to write separate

text-books for different classes of students, and we therefore welcome a book which allows engineers, for example, to see that graphical methods of solution are not the only ones by which the stresses in frameworks can be calculated. On the other hand, the honours student will benefit by working a few numerical examples and drawing a few stress diagrams. The chapters on graphic solutions, bending moments, and the equilibrium of slightly elastic beams are those which appeal especially to the engineer. It would have been advisable, for the sake of the same class of student, to include graphic methods of finding centres of gravity and moments of inertia. The chapters on forces in three dimensions are, so far as they go, excellent. Two chapters deal with the theory of attraction, and are fairly complete, but do not touch upon ellipsoids with three unequal axes. The large number of examples adds greatly to the utility of the book.

Projective Geometry. By W. P. Milne. xvi+148 pp. (Macmillan.) 2s. 6d.—Considering the elegance and power of the methods of projective geometry, it is somewhat surprising that it has not received the place it deserves in the ordinary English mathematical curriculum. To the influence of Oxford rather than Cambridge is due whatever recognition it has hitherto received. Doubtless it was felt that something which seemed essential would have to be sacrificed in order to find time for this new subject; but a good many teachers are now coming to the conclusion that a considerable amount of "geometrical conics" can be taught as well by projection as by the older methods. Dr. Milne's book appears, then, at a fitting time, and it would not be easy to find a more suitable introduction to the subject. The four chapters deal respectively with the straight line, the conic, reciprocation and duality, and general properties of conics, and into them he has managed to compress practically all the fundamental theorems and a considerable number of worked examples containing important results. The great difficulty in this subject lies in the introduction of imaginary elements, and Dr. Milne's method of overcoming it is bold, but not convincing (p. 28). An appeal to co-ordinate geometry is inevitable. There is an excellent collection of problems, and we wish the book the success it deserves.

Science and Technology.

College Physics. By Drs. J. O. Reed and K. E. Guthe. 622 pp. (New York: The Macmillan Co.) 12s. net.—The leading idea of the authors has been to provide the student with a complete course of physics which shall present fundamental facts in a concise manner, rendering plain the historical growth of the subject, and including references to the more important discoveries of the past and of recent times. The treatment is such that it can be followed readily by a second-year student who has a knowledge of elementary mathematics, and the subject-matter is brought up to date, references being given to original researches carried out so recently as 1911. The sequence in which the subjects are taken is novel, and deserves special reference. Several introductory chapters are devoted to the mechanics of solids and fluids, to molecular mechanics, and to sound; then follow sections on heat, magnetism, electricity, and light. The subject of radiation, usually found under the separate headings of heat, light, and electricity, is here treated as a special subject at the end of the section on light. Also, in the section on electricity, current electricity precedes electrostatics in order to secure the advantage of the greater familiarity of the student with the phenomena of applied electricity.

This sequence may have distinct advantages, but it adds to the difficulty of imparting accurate notions of potential, and in this matter the authors have not been entirely successful. No instructions for experiments are given, but numerical examples, with answers, are given at the end of several of the chapters.

Heat, and the Principles of Thermodynamics. By Dr. C. H. Draper. New and revised edition. 428 pp. (Blackie.) 5s. net.—The first edition of this book appeared eighteen years ago, and as, during the interval, so much progress has been made in the subject, the issue of a new edition is fully justified. Recent developments in the liquefaction of gases, in the measurement of conductivity, of radiation, and of temperature are adequately treated. The section on thermodynamics terminates with useful chapters on the principles and theory of heat engines and on applications of Carnot's principle. Questions and exercises are given at the end of each chapter, and typical examination papers of London University and of the Board of Education are added at the end of the volume. Instructions for laboratory exercises are not given. The volume is well printed and illustrated, and it can be recommended to students of intermediate standard.

Senior Magnetism and Electricity. By Drs. R. H. Jude and J. Satterly. 446 pp. 5s.

Senior Heat. By Drs. R. W. Stewart and J. Satterly. 300 pp. 3s.

A Text-book of Heat. By Drs. R. W. Stewart and J. Satterly. 480 pp. 4s. 6d. (University Tutorial Press.)

The first volume is based upon Dr. Jude's "School Magnetism and Electricity," the chief alteration consisting in a more extended experimental treatment of the subject and the omission of the more advanced portions of the earlier volume. Appendices on elementary mechanical principles, and on the theory and practice of some harder experiments, are added.

The second corresponds with "The New Matriculation Heat," by the same authors, except that much has been added to the final chapters on the mechanical equivalent of heat and on radiation. With this modification the volume meets satisfactorily the requirements of the Cambridge Local Senior syllabus.

The third is intended to provide a course on heat of intermediate university standard. It is based to some extent on previous text-books written by the late Dr. Stewart, to which much new matter has been added by the authors. Clear descriptions are given of the latest methods in pyrometry, the liquefaction of gases, and other important developments. A large number of experiments, most of which can be carried out with comparatively simple apparatus, are described.

EDUCATIONAL BOOKS PUBLISHED DURING APRIL, 1912.

(Compiled from information provided by the Publishers.)

Modern Languages.

"A Practical Italian Grammar." By L. M. Shortt. xvi+296 pp. (Allen.) 5s. net.

"Lectures et Exercices (Cours Supérieur)." By F. B. Kirkham. Exercises based on the text, by F. M. S. Batchelor. Chapters on France and on its History from 1804. Senior Local Standard. 142 pp. (Blackie.) 2s.

François Mignet, "La Révolution Française: Selections." Edited by Taylor Dyson. (Blackie's Little French Classics.) 48 pp. (Blackie.) 4d.

"Grundzüge der Naturlehre." By Dr. J. G. Walentin. 230 pp. (Heath.) 3s. 6d.

"Mémoires d'un Collégien." By A. Laurie. 230 pp. (Heath.) 1s. 6d.

"Marlborough's Travellers' Practical Manual of Conversation in English, French, German, and Italian." 144 pp. (Marlborough.) Wrapper, 1s.; cloth, 1s. 6d.; leather with tuck, 2s. 6d. net.

Schiller, "Don Carlos." Edited by F. W. C. Lieder. 665 pp. (Oxford University Press.) 5s. net.

"Examination Notes on German." By Dr. A. Hargreaves. 55 pp. (Pitman.) 1s. net.

"Examination Notes on Spanish." By Alfred Calvert. 55 pp. (Pitman.) 1s. net.

Classics.

"Homer's Iliad." Books XV. and XVI. New prose translation, by E. H. Blakeney. (Bell.) 1s.

"Virgil's Athletic Sports." (New Simplified Classics volume.) Edited by S. E. Winbolt. (Bell.) 1s. 6d.

"Matriculation Selections from Latin Authors. (Cape of Good Hope Edition.) By A. J. Watt and B. J. Hayes. 387 pp. (Clive.) 2s. 6d.

"A Manual of Latin Word Formation." By Paul R. Jenks. 81 pp. (Heath.) 1s. 6d.

"Aristotle's Constitution of Athens." (Macmillan's Classical Library.) Edited by Sir J. E. Sandys. 424 pp. (Macmillan.) 12s. 6d. net.

English: Grammar, Composition, Literature.

"First English Exercises." By Frank Jones. 176 pp. (Blackie.) 1s. 6d.

"The Model Classbooks of English. A Complete Preliminary Course in Composition, Word-building, Phrase-making, Spelling, Grammar, and Analysis." By F. W. Chambers and A. J. Ker. Book V., Scholars. 72 pp. 4d. Book V., Teachers. 96 pp. 1s. Book VI., Scholars. 96 pp. 6d. Book VI., Teachers. 128 pp. 1s. 6d. (Blackie.)

Lord Clarendon, "Cavalier and Roundhead." From the History of the Rebellion. With a brief introduction by W. H. D. Rouse. (Blackie's English Texts.) 128 pp. (Blackie.) 6d.

Goldsmith, "She Stoops to Conquer." (Plain-text Plays.) 80 pp. (Blackie.) 6d.

Goldsmith, "The Good-natured Man." (Plain-text Plays.) 80 pp. (Blackie.) 6d.

Lewis Carroll, "Alice's Adventures in Wonderland." 128 pp. (Blackie.) 9d.

Frances Browne, "Granny's Wonderful Chair." 128 pp. (Blackie.) 9d.

Norman Macleod, "The Gold Thread." 128 pp. (Blackie.) 9d.

Perrault, "The Sleeping Beauty and other Tales." 128 pp. (Blackie.) 9d.

Julia Goddard, "The New Boy at Merriton." (Stories Old and New.) 128 pp. (Blackie.) 9d.

Chambers's Standard Authors:—"Cressy and Poitiers." By J. G. Edgar. 376 pp. "The Wild Man of the West." By R. M. Ballantyne. 288 pp. "Robinson Crusoe." By Daniel Defoe. 330 pp. (Chambers.) Limp cloth, 8d. net each; cloth boards, 1s. each.

The "Childworld" Stories:—"The Story of Undine," "Iduna's Apples," "The Story of Beowulf." 32 pp. each. (Charles and Dible.) 3d. each.

Goldsmith, "Vicar of Wakefield." Introduction and notes by L. Stein. 286 pp. (Clarendon Press.) 2s. 6d.

Carlyle, "Essay on Scott." (Oxford Plain Texts.) 68 pp. (Clarendon Press.) Paper covers, 4d.; cloth covers, 6d.

Ben Jonson, "Forest, Underwood, and Timber." (Selected English Classics.) Edited by A. T. Quiller-Couch. 48 pp. (Clarendon Press.) Paper covers, 3d.; cloth covers, 4d.

Shakespeare, "Tragedies." (Oxford Edition of Standard Authors.) 1,315 pp. (Oxford University Press.) 2s.

Shakespeare, "Macbeth." Edited by S. E. Goggin. 201 pp. (Clive.) 2s.

Shakespeare, "Twelfth Night." Edited by H. C. Duffin. 171 pp. (Clive.) 2s.

"A Treasury of Prose and Poetry." Part IV., 96 pp., 5d.; Part V., 96 pp., 5d.; Part VI., 128 pp., 6d. Edited by Amy Barter. (Harrap.)

"Dramatic History Reader." Part II. Edited by Fred. E. Melton. 128 pp. (Harrap.) 6d.

"Twelfth Night." Acting Edition for Schools and Amateurs. (Shakespeare Edition.) By Orlando Barnett. viii+72 pp. (Heffer.) 1s. net.

"Burke's Speech on Conciliation with America." Edited by F. G. Selby. (English Classics.) 164 pp. (Macmillan.) 1s. 6d.

"Stories from History and Literature." In three series. By A. Gertrude Calm. 48 pp. each. (Macmillan.) 4d. each.

Shakespeare, "King John." Edited by H. M. Belden. (Tudor Shakespeare.) 162 pp. (Macmillan.) 1s. net.

Shakespeare, "The Comedy of Errors." Edited by F. M. Padelford. (Tudor Shakespeare.) 106 pp. (Macmillan.) 1s. net.

The Children's Classics:—Primary: No. 4, "Tales from Norseland." 32 pp. Limp cloth, 3d. No. 5, "Tales from Norseland." II. 32 pp. Limp cloth, 3d. No. 6, "Donkey-Skin." By Charles Perrault. (Adapted.) 32 pp. Limp cloth, 3d. Junior: No. 16,

"The Dwarf's Spectacles." By Max Nordau. (Adapted.) 48 pp. Limp cloth, 3½d. No. 17, "Little Wanderlin and Little Silver Ear." By A. and E. Keary. (Adapted.) 48 pp. Limp cloth, 3½d.

No. 18, "The Magic Valley." By E. Keary. (Abridged.) 48 pp. Limp cloth, 3½d. Intermediate I.: No. 28, "The Last of the Giant-Killers." By Canon Atkinson. (Abridged.) 64 pp. Limp cloth, 4d. No. 29, "Four Winds Farm." By Mrs. Molesworth. (Abridged.) 64 pp. Limp cloth, 4d. No. 30, "The House that Grew." By Mrs. Molesworth. (Abridged.) 64 pp. Limp cloth, 4d. (Macmillan.)

"Teaching Composition." By J. E. Feasey. 202 pp. (Pitman.) 2s. 6d. net.

History.

"Civil Service Examination Papers: History Questions." Edited by A. Percival Newton. (Bell.) 1s.

"The Age of Alfred (A.D. 664-1154)." By F. J. Snell. (Bell.) 3s. 6d. net.

"Documents of British History, with Problems and Exercises." Separate booklets, reprinted from "A History of England for Schools." By M. W. Keatinge and N. L. Frazer. Each about 80 pp. (Black.) 8d. each.

"Suggestions to Teachers. Upon the Use of the Three Books in the Industrial and Social History Series." By Katharine Depp. 128 pp. (Harrap.) 1s. 6d. net.

"Biblical History for Junior Forms." Old Testament. By F. J. Foakes-Jackson. xiv+212 pp. (Heffer.) 2s. 6d.

Bent-Hobson Maps for Scripture History:—No. 3, Canaan as allotted to Twelve Tribes; No. 4, Kingdoms of Judah and Israel; No. 5, Palestine under the Romans. Three maps, each 40×30 inches, in black on brown paper. (Johnston.) 1s. each net.

"Longmans' Readings in South African History

for Standards III. and IV." By Nico Hofmeyr. viii+174 pp.; with fifty illustrations in black and white and seven in colour. (Longmans.) 1s. 9d.

Geography.

"The Children's World." By S. Shenessey. Suggestions to Teachers have been prepared to accompany this book, giving songs and hints regarding hand-work. A copy will be sent free, on application, to any teacher using the book. (Black.) 1s. 6d.

"Geographical Pictures: Land Forms and how they are made." Series III.: "Sculpture of the Earth's Crust." Edited by S. M. Nicholls. (Black.) 6d. per packet of six cards.

"A Junior Geography of Scotland, Regional and Practical. With Orographical, Meteorological, Commercial, and other Maps." By David Frew. 96 pp. (Blackie.) 1s.

Oxford Wall Maps: "Australasia, with Physical Features and Physical Names." "Australasia, with Physical Features and Political Names." By Prof. A. J. Herbertson. (Clarendon Press.) Mounted on rollers, 10s. 6d. net; mounted on cloth to fold, 8s. 6d. net; unmounted, 7s. net.

"The World." 380 pp. (McDougall.) 2s.

"A Geography of Europe." (Macmillan's Practical Modern Geographies.) By T. Alford Smith. 284 pp. (Macmillan.) 2s. 6d.

"Contour Exercise Book." By E. Young and J. Fairgrieve. (Philip.) 4d.

"Deductive Exercises in Practical Geography." Wirral Supplement, London Supplement, S. Lancs. Supplement, W. R. Yorks Supplement, Welsh Supplement, Glasgow Supplement. By Cyril R. Dudley. (Philip.) 1s. each.

Mathematics.

"Blackie's Experimental Arithmetics, Constructive and Generalised." By B. A. Tomes. Scholars' Book V. 64 pp. Paper, 3d.; cloth, 4d. Teachers' Book V. 128 pp. 1s. 6d. (Blackie.)

"The Effects of Errors in Surveying." By Henry Briggs xi+179 pp. (Griffin.) 5s. net.

"McDougall's Direct Arithmetics." Pupils' 1. 48 pp. Paper cover, 3d.; cloth, 4d. Pupils' 2. 48 pp. Paper cover, 3d.; cloth, 4d. Pupils' 3. 64 pp. Paper cover, 3d.; cloth, 4d. "McDougall's Rural Arithmetics." Pupils' 3. 48 pp. Paper cover, 3d.; cloth, 4d. Pupils' 4. 64 pp. Paper cover, 4d.; cloth, 5d. Teachers' 3. 48 pp. 1s. net. Teachers' 4. 64 pp. 1s. net. "McDougall's Girls' Suggestive Arithmetic." Test Questions 1, 2, 3. 36 pp. each. Paper covers, 1½d. net; cloth, 2½d. net. Answers, 2d. net each.

"The Rational Arithmetic for Rural Schools." Scholar's Book. Fifth Year's Course. By George Ricks. 60 pp. (Macmillan.) 3d.

"The Rational Arithmetic for Rural Schools." Scholar's Book. Sixth Year's Course. By George Ricks. 70 pp. (Macmillan.) 3d.

"A School Algebra." Part III. With or without Answers. By H. S. Hall. 120 pp. with Answers, 110 pp. without Answers. (Macmillan.) 1s. 6d.

"A School Algebra." Complete. With or without Answers. By H. S. Hall. 624 pp. with Answers, 564 pp. without Answers. (Macmillan.) 4s. 6d.

Philips' "Explanatory Five-class Arithmetics." Book I. 40 pp. Paper, 2d.; cloth, 3d. Teacher's Book, 6d. net. Book II. 36 pp. Paper, 2d.; cloth, 3d. Teacher's Book, 6d. net. Book III. 40 pp. Paper, 2d.; cloth, 3d. Teacher's Book, 6d. net. Book IV. 48 pp. Paper, 3d.; cloth, 4d. Teacher's Book, 9d. net. Book V. 48 pp. Paper, 3d.; cloth, 4d. Teacher's Book, 9d. net. Book VI. 48 pp.

Paper, 3d.; cloth, 4d. Teacher's Book, 9d. net. Book VII. 48 pp. Paper, 3d.; cloth, 4d. Teacher's Book, 9d. net.

Science and Technology.

"Nature Study in Preparatory Schools." By a Sub-Committee appointed by the Association of Public School Science Masters. (Bell.) 6d. net.

"The Chemistry of Housecraft: a Primer of Practical Domestic Science." By Lucy Hall and Ida Grünbaum. 80 pp. (Blackie.) 8d.

"Round about the Seashore." "Familiar Friends at Home." "In the Garden." By Margaret Cameron. 56 pp. each. (Blackie.) 6d. each.

"Bevels and Cuts." By Edward Hardy. 150 pp. (Cassell.) 2s. net.

"Wild Flowers as they Grow." Vol. III. By H. Errenhigh Corke and G. Clarke Nuttall. 200 pp.; twenty-five plates. (Cassell.) 5s. net.

"Volumetric Analysis." By C. H. Hampshire. (Churchill.) 3s. 6d. net.

"Annual Tables of Constants and Numerical Data: Chemical, Physical, and Technological." Vol. I., 1910. (Churchill.) Cloth, 24s. net; paper, 21s. 6d. net.

"Text-book of Hygiene for Teachers." By R. A. Lyster. 504 pp. (Clive.) 4s. 6d.

"Cast Iron in the Light of Recent Research." By W. H. Hatfield. xiii+249 pp. (Griffin.) 10s. 6d. net.

"Methods of Air Analysis." By J. S. Haldane. x+130 pp. (Griffin.) 5s. net.

"Prospecting for Minerals." By S. Herbert Cox. xi+260 pp. (Griffin.) 5s.

"Meteorology: a Text-book on the Weather, the Causes of its Changes, and Weather Forecasting." By W. I. Milham. 568 pp. and 66 page plates. (Macmillan.) 19s. net.

"The Teaching of Physics." By C. Riborg Mann. 330 pp. (Macmillan.) 5s. 6d. net.

"Earth Features and their Meaning." By W. H. Hobbs. 546 pp. and 24 page plates. (Macmillan.) 12s. 6d. net.

Pedagogy.

"Ethics and Education." By Prof. J. Howard Moore. (Bell.) 3s. net.

"The Teaching of Modern Subjects." "English." 103 pp. 1s. "History." 68 pp. 1s. "Geography." 86 pp. 1s. "Mathematics and Science." 143 pp. 1s. 6d. By J. Welton and W. P. Welpton. "Music."

By R. T. White, Mus.Doc. 37 pp. 6d. (Clive.)

"Education, Areopagitica and the Commonwealth." Edited by L. E. Lockwood. lxxxvi+206 pp. (Heath.) 2s. 6d.

"The Teaching of Philosophy to Pass Men." By Harold P. Cooke. 18 pp. (Heffer.) 6d.

"Education in Scotland: a Sketch of the Past and the Present." By W. J. Gibson. (Longmans.) 2s. 6d. net.

"An Experiment in History Teaching." By Edward Rockliff. (Longmans.) 2s. 6d. net.

"Social Aspects of Education." By Irving King. 442 pp. (Macmillan.) 7s. net.

"Outlines of the History of Education." By W. B. Aspinwall. 214 pp. (Macmillan.) 3s. 6d. net.

"Education by Life." By various writers under the editorship of Miss H. Brown-Smith. 212 pp. (Philip.) 3s. 6d. net.

"Handbook for Commercial Teachers." By Fred Hall. 190 pp. (Pitman.) 2s. 6d. net.

Miscellaneous.

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

"Healthy Brain and Healthy Body." By Amy B. Barnard. 128 pp. (Cassell.) 1s. net.

"The Little Book of Beauty." By Mrs. Noble. 176 pp. (Cassell.) 1s. net.

"Outdoor Sports." (Cassell.) 3s. 6d.

"The Science of Logic: an Inquiry into the Principles of Accurate Thought and Scientific Method." By Dr. P. Coffey. Vol. I. "Conception, Judgment, and Inference." Vol. II. "Method, Science, and Certitude." (Longmans.) 7s. 6d. net each.

"Pronunciation Chart." By Dr. W. A. Aikin. (Longmans.) 3d. net.

McDougall's Supplementary Readers:—"The Story of Una." 32 pp. Paper covers, 2d.; cloth, 3d. "The Star: a Tale of a Cat," &c. 32 pp. 3d.

"Cycle of Nature Songs." By F. Steane. 66 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.

The Question of Sequence in Geometry.

THERE is one way in which *teaching* of geometry can be made independent of sequence, and I am sorry that the plan has only been touched on in the discussion of last month in a vague and indefinite way. Take, for example, the following group of geometrical properties: the angle property of segments of a circle; the rectangle property of chords of a circle; the properties of similar triangles and the rectangle property of four proportional magnitudes. These properties are mutually interdependent, so that one of them can be deduced from the others. The main point of disagreement between most of the writers appears to be which properties should be assumed or proved independently and which deduced from them. The answer is that a properly trained pupil should learn to be able, given any three members of the group, to deduce the fourth. If this policy be carried out consistently it will be purely a matter of choice which properties he learns first, and the examination difficulty will at once disappear. To take my Latin difficulty as an analogue, I was quite prepared to dodge the declensions about in any order in which they were asked, but my teacher would not be satisfied with this.

If this plan should be adopted, a recognised arrangement would be purely a matter of convenience, and would be used for purposes of reference alone. In this case Euclid's sequence possesses the advantages I claimed for it of practicability, being the only one widely and universally known. No attempts to reform the alphabet are likely to succeed, although it represents about as bad an arrangement as could possibly be imagined; but it enables everybody to consult a dictionary with ease.

I do not believe that any good will be done by the appointment of any more committees and the drawing up of any more recommendations. We have had quite enough of this sort of thing already. What is now wanted to clear the air is a book written for teachers tracing out the natural evolution of geometrical truths from intuition and experience, and from logical reasoning, the interdependence of the various methods of investigation, and the different alternatives thus offered in the choice of fundamental axioms. A course of lectures on this subject given to teachers would serve the same end. We have a good many writings

on "The Foundations of Geometry," but I have never seen one in which the individual propositions of our text-books are discussed in the necessary detail. If such a book exists, I and probably others would like to hear of it.

The discussion opens up a number of collateral questions, for example, the desirability of teaching geometry more as a science of observation than is usually done, but it is evident that we might go on discussing such views almost indefinitely without coming to any practical conclusions. It is desirable to keep examinations as much as possible out of the discussion, as they open up a far wider and more general question of reform, which is now being investigated by a committee of the British Association.

G. H. BRYAN.

[The above addition to Prof. Bryan's summary and reply was received just too late for inclusion in our last issue.—EDS.]

I HAVE read THE SCHOOL WORLD for many years, but it is a long time since we had so important a discussion as that on "The Question of Sequence in Geometry."

In the May number your readers have had the views of the experts—examiners and mathematicians—before them, but I trust THE SCHOOL WORLD will not allow the matter to drop without a further effort to obtain the views and experience of form-masters working in ordinary secondary schools. I quite agree with Dr. A. C. Jones, of Bradford, who emphasises the point that the advice given by committees of teachers engaged in old-fashioned or new-fashioned public boarding-schools is often quite useless to men teaching in the great majority of secondary schools.

Some of your correspondents appear to ignore altogether the important fact that there is a migration of boys and of masters from one place to another.

What, I would ask, is the state of geometry teaching in that school where, we are told, no fewer than forty changes of staff have occurred during the past three years? And what happens to the boy who is obliged to change schools two or three times during his school career? In the case of my own son, the absolute chaos that exists to-day has been disastrous—the commencement, in three schools, of somebody's geometry, each with its own definitions, axioms, and sequence.

We are not all millionaires—we cannot all afford to send our boys either to public schools or to boarding-schools of any type. I would plead, therefore, for some reasonable sequence of work so that boys who are obliged to change schools need not have their careers ruined.

There are two other points that I should like to touch upon. (1) It is of no great importance, so it seems to me, whether the majority of boys get through an extended course of geometry or not—that is a fiction of the mathematician. It is, however, of the greatest importance "that every boy should be trained to draw the correct conclusion from given premises, to give sound authority for every statement made, and to detect the flaw in an unsound argument."

For boys who were properly taught, Euclid did secure thus much.

(2) Ought it not to be possible to transfer boys from one school to another of the same type with much greater ease and without ruinous waste of time to the boy?

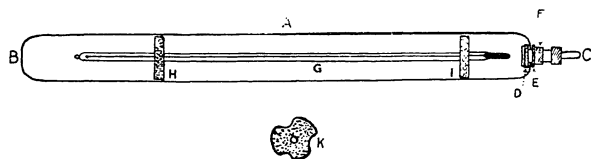
That a sufficient number of teachers and others may rally around Prof. G. H. Bryan in his endeavour to bring some order out of chaos is the wish of at least one

PARENT.

Experiment to Show the Thermal Effects of Compression and Expansion of Air.

THE following is a description of an apparatus for showing heating and cooling of air when compressed and expanded. The apparatus is simple to construct and works satisfactorily, and may be of some interest to your readers.

A is a strong glass tube 18 in. long and about $\frac{5}{8}$ in. diameter. This is sealed at B and closed at the other end by an ordinary bicycle valve C, fitted in an



airtight manner by means of two rubber washers D and E, and the nut F. A thermometer G is enclosed and kept in place by means of the two pieces of cork H and I, which are also shown in section at K.

To use the instrument, first note the temperature and then pump with a bicycle pump; a rise of temperature will take place. Releasing the valve, when the temperature has fallen to the normal, will cause a sudden expansion and a consequent fall of temperature.

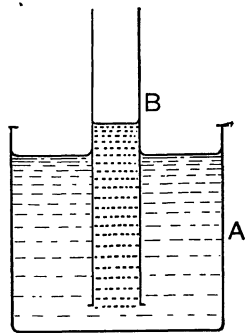
P. WERTHEIM.

Tiffins' Boys' School.
Kingston-on-Thames.

Variation of Liquid Pressure with Density.

THE following experiment shows in a striking way how the pressure in a liquid is dependent on the density of the liquid. A is a glass dish filled with saturated salt solution of density 1.2. B is a glass cylinder open at both ends—if it has a ground flange at the lower end so much the better. File marks may be made at 1 cm. intervals starting from the flanged end. This end is closed with a ground glass plate, a little grease being used to make a watertight fitting.

The covered end of the cylinder is now pushed down into the salt solution to a depth of 10 cm., and clamped there in a vertical position. Water is now poured into the cylinder to a depth of 12 cm. Probably a gentle tap with a glass rod will be required to displace the plate. This procedure need cause only the slightest mingling of the salt solution and pure water. The water now remains standing inside the cylinder 2 cm. higher than the level of the salt water outside.



A similar experiment can be done thus: salt solution is poured into the cylinder, and in this case when the plate is dislodged the levels of liquid inside and outside the cylinder are the same. Therefore the pressure of a 10 cm. column of strong salt solution of density 1.2 equals that of a 12 cm. column of water of density 1. Or, the heights of columns of liquids, the pressures of which are equal, are inversely proportional to the densities of the liquids.

Incidentally the experiment also shows the extreme slowness of diffusion of liquids. In an experiment like that described, but with the cylinder immersed only to 5 cm. in the salt solution, and therefore with a water level only 1 cm. higher, equality of level was not quite established at the end of three weeks.

Eltham College, Kent. J. W. WARD DYER.

A Simple Form of Constant Volume Air Thermometer.

A SHORT-NECKED, round-bottom flask is fitted with a good air-tight indiarubber stopper, through which passes a 40-cm. piece of wide-bore thermometer tubing. The flask is about 500 c.c. capacity, and contains mercury to a depth of about 1 cm. To use the apparatus, it is first placed in a beaker of ice-cold water for three minutes, and then tilted on one side, when the mercury flows away from the end of the tube and the air inside the flask is put into communication with the outer air.

On placing the flask upright again, we have air at 0° C. enclosed at atmospheric pressure.

The distance from the top of the tube to the mercury in the tube is measured by pushing an iron wire down the tube until it just touches the mercury, and measuring the length of this wire.

The water is now heated to any required temperature, and the height to which the mercury rises is measured with the iron wire as before.

The error introduced by the volume of the air not being kept quite constant is only one-tenth per cent. in a well-made apparatus. We therefore have

the same volume of air at the new temperature, and the pressure is, of course, found by adding the length of the mercury column reduced to 0° C. in the flask to the barometric height. The average of six experiments done by a class at this school gave $1/272.8$ as the coefficient of expansion of air at constant volume.

E. NEWBERY.

Sidcot School, Winscombe, Somerset.

Cheap Classics.

If your review of Allman's Classical Texts makes them better known, many teachers and parents will have reason to thank you. The best teachers of Latin prefer to give their pupils nothing but the text, and they cover twice as much matter in the year as used to be read a generation ago. I have examined an intelligent class of boys in their second year of Latin, who, with five hours a week for the subject, nearly completed six books of Cæsar's Gallic War in one school year. Obviously the over-edited, much-padded text-book is an obstacle to progress in several ways, and the extraordinary cheapness of Allman's texts (1s. 6d. a dozen) is a notable point in their favour.

I observe that while your reviewer commends the print of these books, he thinks that the margin is too small. I cannot theorise on this subject, but I can testify that masters and boys have used these texts here for eleven years, and I have never once heard this criticism from any master or boy. In fact, the width of margin is normal.

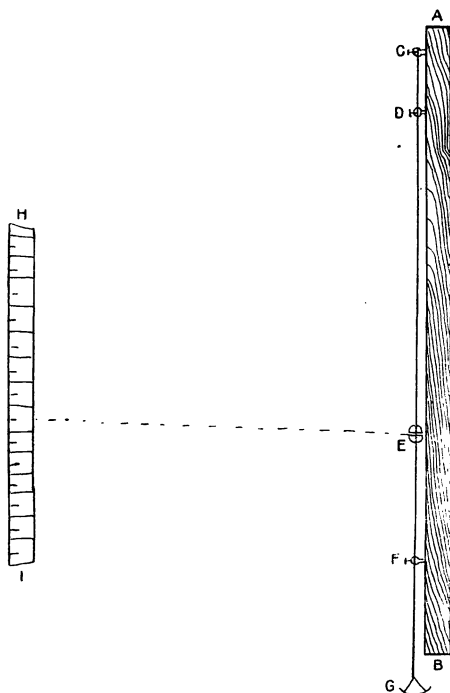
I cordially agree with your reviewer in his frequent condemnation of school books which appear to be edited on the assumption that the pupil knows nothing and must be made, as far as possible, independent of his master, who also knows nothing. Books thus edited are singularly useless to the average boy, they are a nuisance to the master, and they add enormously to book bills.

E. D. HANSON.

St. Aloysius' College, Glasgow.

Modified Apparatus for Young's Modulus.

A SUITABLE length of wood, AB, is taken, into which are inserted two binding screws (C and D). There is a third screw at F. The wire is securely fixed by C and D, and is kept in position by F, which is unscrewed during an experiment. After the experiment the wire is loaded sufficiently to keep it straight,



and then F is screwed home. This will obviate most of the crinkles that arise in an unweighted wire.

The wire carries a split mirror at E, which reflects its light upon a scale HT, whence the elongations can be calculated. The "actual" portion of the wire extends from the bottom of D to the middle of E.

W. R. FORBES.

The School World.

A Monthly Magazine of Educational Work and Progress.

EDITORIAL AND PUBLISHING OFFICES,

ST. MARTIN'S STREET, LONDON, W.C.

Articles contributed to "The School World" are copyright and must not be reproduced without the permission of the Editors.

Contributions and General Correspondence should be sent to the Editors.

Business Letters and Advertisements should be addressed to the Publishers.

THE SCHOOL WORLD is published on the first of each month. The price of a single copy is 6d. Annual subscription, including postage, 7s. 6d.

The Editors will be glad to consider suitable articles, which, if not accepted, will be returned when the postage is prepaid.

All contributions must be accompanied by the name and address of the author, though not necessarily for publication.

The School World

A Monthly Magazine of Educational Work and Progress.

No. 163.

JULY, 1912.

SIXPENCE.

THE INSURANCE ACT AND TEACHERS IN SECONDARY SCHOOLS.

By FRED CHARLES, B.A.,
Strand School, London.

BEFORE the Insurance Act was passed teachers in secondary schools considered very carefully those of the provisions of the Bill that affected them, and came to the conclusion that the conditions did not fit their case, and that they would rather be exempt from insurance under its terms. As a class their health is excellent, hence, when classed with people of other and less healthy occupations, they would give rather than receive benefit from the combination. Some teachers would come within the scope of the Bill, while others, by reason of their salary or by reason of provision made by the local education authority that employed them, would be excluded from its influence; thus the Bill was likely to bring a new line of cleavage into a group of teachers already too much divided.

Many teachers, nay, most teachers, begin work on a salary less than £160 a year, and a number of them obtain, after the lapse of years, a salary above that amount; hence at first they would come under the Bill and be compelled to insure; then they would pass the magic limit and have to pay as voluntary contributors the contributions of both employers and employed. The fortune of some, however, was to be still harder; only those who had contributed for five years could become voluntary contributors; those whose salaries reached £160 within five years of starting, who had contributed for two, three, four years, were to be fined to the extent of their contributions; they had paid, they could not become voluntary contributors, they were not eligible for benefits, they must abandon their contributions. One other reason was alleged; teachers have a right to their salaries during sickness—why, then, should they contribute

fourpence a week in order to secure ten shillings a week during illness? Why should their employers pay threepence a week in order to obtain ten shillings a week for a man to whom they are paying thirty shillings or two pounds a week? It was for these and other reasons that teachers tried to obtain an amendment to the Bill cutting them out from its provisions. On one such amendment, moved by Sir Phillip Magnus, the House divided, but it was lost; Mr. Pease then secured the insertion of a clause that provides for the exclusion of teachers "if and when" other provision is made for them; hence the keen interest of the profession in the progress of the pensions movement.

When the Bill became an Act, the teachers' associations at once set to work to review the position so far as their members were affected, and to make provision for the altered circumstances. The line of division is clear; the salary limit rules it; there are but few exceptions to the rule that every teacher whose salary is less than £160 a year comes under the Act, while those teachers who have salaries of over £160 are exempt from compulsory insurance. The three exceptions to this general rule are those who have a private income of at least £26, members of the Officers' Training Corps, and those who are in the service of local education authorities that make adequate provision for their teachers in case of sickness or permanent disablement.

The White Paper of Statistics issued in November last shows that of the masters and mistresses in grant-aided schools no headmasters, 0·4 per cent. of the headmistresses, 42·8 per cent. of the assistant-masters, and 89·8 per cent. of the assistant-mistresses will come within the purview of the Act. And this in grant-aided schools; the salaries in those endowed schools that do not earn grants are in most cases smaller than in those that do; the salaries in a large number of the schools privately owned are smaller still, so the pro-

portion of teachers in these institutions will be higher than the figures just given; well over 90 per cent. of assistant-mistresses will come under the Act. There are, too, a not inconsiderable number of lecturers and demonstrators at universities and university colleges who are, at the commencement of their careers, in receipt of salaries less than £160; these men must be insured under the Act. Yet one other group of which it is impossible even to guess at the number, the governesses in private families; very, very few governesses will be exempt. All these teachers come within the scope of the Act; what, then, must they do, and what will the Act do for them?

The Act requires them to contribute towards benefits that will be specified later; the amount of contribution depends on whether or not the employers undertake to pay six weeks' full salary in case of illness; in the absence of this undertaking the contribution of men is to be fourpence a week and of women threepence a week; if the employer enters into the undertaking, then the contribution of both men and women is one penny less, that is, threepence and twopence respectively. The corresponding contributions of employers are, in the case of men, threepence and twopence, and in the case of women, threepence and twopence-halfpenny. These contributions will have to be made for the holiday weeks as well as for the weeks during the term; the only abatement is that contributions will not be payable while a member is receiving sick allowance, or for an average period of four weeks per annum should he be unemployed. The contributions of teachers will be made by deduction from salary. The fear has been expressed that some teachers will hope for exemption until they find that their cheques first payable after July 15th next are not as large as, or rather are even smaller than, was expected.

The Act provides as benefits for the insured a sickness allowance of ten shillings a week for men and of seven and sixpence a week for women, commencing from the fourth day's incapacity and continuing for the first twenty-six weeks of illness; a disablement allowance of five shillings a week for both men and women until the end of the illness, however long it may last, or until they reach the age of seventy; free medical treatment, including medicine and surgical appliances; free sanatorium treatment for the insured and for his dependants in the event of tuberculosis or of certain other diseases; and a maternity allowance for each confinement of thirty shillings for the wife of a member; if the wife is insured, sickness allowance is paid in addition to the maternity allowance.

Such is a very brief summary of the most

important provisions of the Act as they apply directly to teachers in secondary schools. Next comes the question how is it to be worked. Evidently the first decision a teacher has to make is whether he or she is exempt; has he a private income of more than twenty-six pounds a year? If so, he can claim exemption. If not, is his salary more than £160? If so, he is exempt. Here, however, comes a difficulty; what are the emoluments of a teacher's office? He receives £140 a year and for thirty-nine weeks in the year he is boarded free of charge in return for performing various duties that may or may not be educative, but are certainly a part of a resident master's most onerous and important labours, labours thrust upon him by parents who ought certainly to pay their substitutes for doing what, many people hold, they ought to do themselves. Some recognised sum may be named as the equivalent of residence, but no decision has, as yet, been published; a very usual estimate is forty pounds a year, though this is in some cases obviously inadequate and in others far too generous; but the insurance commissioners can scarcely be expected to inquire whether the accommodation provided for masters is that of a public school or that of a lodging house; or whether they are to estimate the equivalent as what it costs the proprietor of the school, or at what it saves the resident master; evidently some uniform sum should be adopted.

The next point for decision is, shall I join an approved society or shall I become a post-office contributor? Practically all the organised trades, the workers in which will come under the Act, have societies that will doubtless become approved societies, so to become a post-office contributor would be to join that section of insured persons whose health and lives are of the worst, so there can be no doubt of the answer to this query; join an approved society. But which shall it be? Professional spirit will dictate the answer in a very large number of cases; there are, however, teachers who will consider, From which of the approved societies shall I obtain the best terms; can I get anything more than the five benefits already stated; and if so, how?

The five benefits enumerated are the minimum benefits under the Act. The funds of every approved society will be valued triennially. Should a society have a surplus after paying the minimum benefits, that surplus must be spent in additional benefits.

The associations of secondary-school teachers mainly concerned have combined to form the Secondary, Technical and University Teachers' Provident Society. The committee of management represents the Association of Assistant-masters, the Assistant-mistresses' Associa-

tion, the Association of University Women Teachers, the Association of Teachers in Technical Schools, and the Teachers' Guild of Great Britain and Ireland. Other associations are now pressing to be included, and there is every probability that the society will have a membership exceptionally healthy, numerically strong, and homogeneous. It is well known that the masters and mistresses in the secondary schools are exceptionally healthy, and the society therefore expects to have a surplus after providing the benefits required under the Act, and so to be able to provide others besides, *e.g.*, it might provide dental treatment or increase the amount of sickness allowance; further, as the salaries of members increase and reach the limit of £160, their lapsed contributions, if they have been contributing for less than five years, will go to swell the general fund. This is an additional reason for teachers to join this society, for lapsed contributions of teachers will go to help teachers, and will not be used for the benefit of other classes of lives.

"The society is open to persons whose main employment is teaching in institutions recognised by the committee of management as falling under the following descriptions: Universities, university colleges, training colleges, technical institutions, secondary schools (public or proprietary), preparatory schools; together with persons whose main employment is teaching otherwise than in public elementary schools, and who possess qualifications approved by the committee of management."

Having determined that he will not be a post-office contributor, that he will join an approved society, and that the society for him is the one society of his professional brethren, the secondary-school master has next to become a member of that society—the Secondary, Technical and University Teachers' Provident Society; there will be no entrance fee, there will be no medical examination, and no money will be paid direct to the society by members. What, then, constitutes membership? Everyone who has to be insured will have to obtain a card either from an approved society or from a post-office; this he will hand to his employer, who will affix the necessary stamps; then the teacher must send it to the address of that society he has decided to join; the presentation of this first card will constitute his membership and will enable the society to claim a share of the initial expenses from the Government in respect of that member.

If teachers notify the secretary of the society at its office at 35 John Street, Bedford Row, London, W.C., that they wish to become members, the society will give them full instructions and will send them cards, and thus they

will be relieved of all trouble save that of handing the cards to their employers and of sending them to the office when stamped. Members will not make any payment direct to the society; their own contributions will be deducted from salary; these and the contributions of their employers will be affixed to the cards in stamps, and the stamped cards will be handed to the society.

Under the provisions of the Act the sickness benefits will not commence until a teacher has been a member for twenty-six weeks and payments have been made for that period; teachers should therefore start as soon as ever the Act comes into force, that is, on July 15th, 1912. All teachers more than forty-five years of age must, if they wish to receive the benefits in full, join before the 31st December, 1912.

In case of illness notice will be sent to the society and the allowance will be forwarded from the society. The insured will have the choice of a doctor from among a panel of doctors in the locality; but the doctors are still pressing for alterations in the conditions on which their services are to be given. The important point, about which there seems no doubt, is that everyone will have a choice and no one will be under the necessity of employing a medical man whom he himself has not selected.

If a woman who is a member of an approved society marries, she has a choice of five courses during her married life. The Act seems to recognise that marriage may lead to widowhood, and the position of women contributors who marry is zealously provided for. They lose as little as is possible under the Act. But they should certainly become members of approved societies, so that they may have expert advice available at any time.

To the society thus constituted to carry out the provisions of the Act with the greatest advantage to teachers, there has been added another section; of this section, however, membership is restricted to those teachers who are at the time of application members of one or other of the associations named, or of such other associations as may be unanimously agreed upon by the committee of management.

This will give an opportunity to those insured under the Act of obtaining still further allowances during sickness, and to those not compulsorily insured under the Act of insuring against sickness. Members pay in, within certain limits, what they please. When ill they receive during each week of illness a sum depending upon the amount of their contributions; this sum comes partly from their contributions and partly from the general fund; in the most favourable case, that of a man of good health entering before he is thirty-two,

one-quarter comes from the member's own fund and the remaining three-quarters from the general fund. Each year, when the balance is struck, each member is credited with a share of the balance in proportion to the amount of his contributions. This amount he can withdraw when he pleases with the exception of two years' contributions. In case of death no part of the member's own fund is retained by the society, but the whole is paid to the representatives of the insured.

In this way the society offers exceptional opportunity of insurance to members at a very small cost; the actual cost to each member is estimated at threepence a week for each guinea of benefit, while a member who has the misfortune to be ill in a very short time reaps full advantage from his membership.

This section, the dividend section, of the society is not part of the machinery for working the Act, though its work is very nearly allied to that of the approved section, which has been brought into existence to secure for teachers in secondary schools the utmost benefits from their contributions and from those of their employers under the Act. The great advantages under which it will work, its homogeneity, the strong professional feeling it will engender among its members, the entire absence of malingerer that should characterise it and differentiate it from so many existing societies, should attract to it every member of the profession who is compelled to insure.

RURAL SCHOOLS—SOME CRITICISMS AND SUGGESTIONS.

By WILLIAM ALDRIDGE, B.A., B.Sc.

Headmaster of Shepton Mallet Grammar School.

IN rural districts, secondary schools fall into two main divisions, local and non-local. The former are necessarily in the main day schools and the latter boarding schools. Where the boarders are mostly town boys who are sent into the country to obtain the benefits of purer air and greater opportunities for healthy recreation during the all-important years when their bodies and minds are developing, and who will return to city life after their school days are concluded, such non-local schools are for all practical purposes town schools, and as such are outside the discussion of the rural education problem. I propose to confine my attention to those schools in rural districts which are engaged for the most part in educating pupils born and reared in the country, familiar with country sights and occupations from their cradle, and the majority of whom will remain in intimate contact with rural life to the end of the chapter.

The local rural secondary school is usually

either a small endowed school, more or less aided by the Board of Education and the local education authority, or is established by the local education authority and wholly maintained by it and the Board. The pupils in such schools are derived from several sources. A considerable proportion of them come from the neighbouring primary schools, others from the more or less efficient private "seminaries for young ladies" which abound in our small country towns, while a few are educated at home by the nursery governess until they are old enough to enter the local grammar school, or until they succeed in making themselves too much of a handful for that estimable lady's comfortable management. Most of the pupils from the small villages are perforce educated at the village primary school until they are sufficiently grown to undertake the daily journey to the more distant secondary school. But the relation of the primary to the secondary school leaves much to be desired. It is becoming more and more recognised that the curriculum of the rural primary school needs radical reform so as to bring it more into harmony with the daily lives and experience of the pupils. This postulates a revised training for the teacher, great freedom for him in arranging his syllabus, a ruthless sweeping away of certain "fancy" subjects—showy, but in the main useless—and a wider outlook on things in general than is usually taken by the youthful and inexperienced specialist into whose hands education, in common with many other things, is in danger of falling.

At the recent N.U.T. Conference the president gloried in the competition which is growing between the "tops" of primary schools on the one hand and the secondary schools on the other, and demanded greater facilities for making this competition keener. Surely this is a step in the wrong direction? At any rate, great discontent exists in rural districts because primary schools do not give so efficient a grounding in reading, writing, spelling, arithmetic, and such-like indispensable subjects as was formerly the case, owing largely to the desire to compete with secondary schools. As a consequence, although ample facilities are provided for free secondary education in the form of county scholarships and free places, the head-teachers of primary schools are not always willing to urge their best pupils to compete for them because, they say, they lose and the secondary school gains the credit which these pupils are subsequently capable of bringing to the school.

This remark applies with especial force to the annual competition for free places, the better pupils being often held back until they

are nearing the maximum age. In the country boys leave the secondary school at, possibly, an earlier age than in town schools. A farmer is anxious to get his son on to the farm, often as early as fourteen years of age, and seldom later than sixteen. Hence, it becomes more than ever necessary that boys who are to receive a secondary education should commence that course at as early an age as possible. Where a preparatory department can be organised I am in favour of making the minimum age of entry as low as eight, but in any case it should not be later than between ten and twelve years. Unfortunately, many boys are kept at the primary schools until they are nearly fourteen, and are then expected to work educational miracles during a stay of a year or two at the secondary school.

There are many difficulties in connection with the provision of secondary education for the brighter boys in the elementary schools of country districts. I have only space at my disposal to mention one or two of them. Some are educational, *e.g.*, the early groundwork is often imperfectly laid both in the public primary schools and in the private schools. The three R's are not as thoroughly mastered as they were ten or fifteen years ago, and spelling is often lamentably weak. The mechanical accuracy which existed in the days of "payment by results" seems to have disappeared, but there is not often a corresponding increase of intelligence developed in its place. English grammar seems to be quite neglected, and the inability of a pupil to analyse an ordinary sentence, or to distinguish a noun from a preposition, an adverb or an adjective from either, is a serious handicap when a foreign language has to be learned. Other difficulties are financial, connected with (a) the schools, (b) the parents of the pupils. Country schools are as a rule small and poorly endowed, and where the requirements are great and the income small, financial embarrassment is a crippling obstacle to efficiency and progress. I suppose it is too utopian to expect that grants in aid will ever be regulated by the *needs* of a school instead of by the numbers and ages of its pupils. Where schools are rate-supported the size of the rate bill is often of greater moment to the man who has to meet it than the educational efficiency of the school.

County scholarships often carry with them a certain amount of financial aid to the parents of the scholars in addition to free tuition, but in the case of free places no such provision is made. Consequently, these are often taken up by people who can well afford to pay the fees of the secondary school, to the exclusion of the brighter elementary school pupils whose

parents decline to undertake the financial responsibility of a free place. Free placers are often a source of weakness to a country school educationally and financially. They are not often particularly bright, or apt, pupils, and they frequently leave at or about the age of fourteen, and the effect of the imperfect secondary-school training is sometimes to turn an embryo happy and contented artisan into a discontented clerk.

Free placers should be selected by the heads of the primary schools for their superior intelligence and suitability for a secondary-school training, and should be transferred to the secondary schools at or soon after the age of ten; the parents should be required to give a specific undertaking, under penalties, to allow the pupil to complete the secondary school course at least to the age of sixteen, and where necessary, aid should be forthcoming to enable this undertaking to be carried out. Where the pupil lives at a distance from the secondary school, means of transit or arrangements for boarding should be provided. It is an open question whether the present system, which insists on quantity without regard to quality, is not calculated (where the money is not wasted on the wrong class) to produce a generation of dissatisfied agitators rather than contented, skilled, and intelligent workers.

A serious difficulty with some parents is that they look to their children to begin to earn something to relieve the financial strain on the family exchequer when they reach the age of from twelve to fourteen years, and if they are to forego this source of income to enable their child to receive a secondary education it is necessary to make up this loss to them. At present there is no means of meeting such cases as these.

As regards the kind of education most likely to be useful to boys in rural districts, I advocate that the rural elementary school should fix its attention chiefly on the fundamental subjects of reading, writing, spelling, arithmetic, and the mother tongue. Unless these are thoroughly mastered subsequent dissatisfaction is inevitable. Reading aloud is often unintelligent and monotonous in tone, and this militates against a love of reading being engendered. The hold-your-pen-as-you-please style of writing, now so much in vogue, should be abandoned, and a return made to saner, if more antiquated, methods. The principles of spelling should be taught. It is seldom that one finds an ex-elementary school pupil nowadays who can divide a word into syllables. In arithmetic, the chief faults I find are that pupils are not efficiently taught to make rapid mental calculations, and that sums put on to paper are often an unintelli-

ble mass of figures. A much better training in accurate and intelligent thought could be provided if pupils were taught to write down a logical explanation of each calculation as it is made, and to endeavour to get at the required result in the shortest possible manner. Decimals are not tackled early enough, and are seldom thoroughly grasped. A short time ago I found a candidate for a free place who had passed through standard vii. writing down 3017 and laboriously dividing it by 100 by long division!

In my opinion, the rest of the curriculum of the primary school should be at the discretion of the head-teacher, but it should include lessons on geography or history and elementary science, taken in such a way as to interest the pupil and develop his intelligence and power of expressing himself in good English. The science (call it nature study or what you will, only give it a practical bearing) should deal with elementary facts connected with plant and animal life, and should interest the pupil in what he sees around him in his daily walks abroad. Manual training should find a place in the work of the older boys, but it should be carefully planned so as to be within the capabilities of the pupil. A boy of twelve is rarely strong enough to dig a garden efficiently with an ordinary spade, and a boy should not be asked to plane a piece of wood until he has strength enough to push the plane right through the stroke. To ask a boy to do work which for him is physically impracticable is to injure him bodily and to disgust him with the work it should be the teacher's object to make him love. Lessons on the skilled manual processes of the farm and garden might be given if the teacher has the requisite knowledge of the how and the why, and these might be supplemented by visits to farms, &c., to study their practical applications.

With such a training manual labour might no longer be regarded as less dignified than that of the poorly paid clerk or counter-jumper, and those elementary pupils who proceeded to the secondary school would be in a better position to make efficient progress.

In the secondary schools the problem is considerably more complicated. The *sine qua non* must ever be an efficient general education such as will fit every pupil for any walk in life. With this end in view, the curriculum must include a thorough course of English (including grammar, literature, geography, and history), mathematics, science, drawing, and manual instruction. The moral character must be developed, preferably with the aid of religious instruction, and a foreign language may be studied with advantage if time can be

found for its inclusion. The whole course can receive a rural bias without in any way interfering with its educational value. None of the work must be specialised in the strict sense of the term, and practical agriculture (as such) must be considered as outside the scope of the course.

The mathematics should be of as practical a nature as possible. Decimals should be taught early, and the course should include mensuration, leading up to simple land surveying. A few lessons with the chain, cross-staff, and level add to the interest and give a practical turn to the whole. The theodolite is a luxury; but, if it can be added, it gives still further interest. The mensuration should be correlated with the physics course, and each rule tested in the laboratory before use. I introduce the use of four-figure logs. into the first-year's course of practical physics so as to save labour in the calculations of densities and the like. The drawing should include practical geometry, and can be correlated with the woodwork. The drawing of plans and elevations with isometric sketches forms an admirable groundwork for mechanical drawing. The woodwork course can be made to include a considerable number of objects of use in the garden and on the farm, and boys can be encouraged to make hen-coops, dog-kennels, hives, and such-like things in their spare time.

The science will include the fundamentals of physics, chemistry, and botany, taught with a special eye to their applications to horticulture and agriculture. The physics must, therefore, include some mechanics applied to the use and care of agricultural machinery; and densities, capillarity, surface tension, fluid pressures, the use of the thermometer, hygrometer, barometer, and rain-gauge (*e.g.*, in forecasting weather), specific heat, latent heat, radiation and absorption of heat, evaporation, boiling and melting points, and the nature of light will be among the subjects marked down for special treatment. The teaching of chemistry must aim at making the various processes of agricultural practice, and especially manuring, intelligible. Botany must teach how and why plants grow, with special relation to the economic plants of the garden and farm, and to the weeds which hinder the work of the agriculturalist. But the teaching must not aim at the production of agricultural chemists and botanists. The boy who wants to specialise in this direction must proceed to an agricultural college.

We manage to find time to include a simple system of book-keeping such as can readily be adapted to the needs of the farmer or small shopkeeper, and this gives excellent practice in neatness and accuracy of arrangement.

SOME ASPECTS OF CO-EDUCATION.

By CECIL H. S. WILLSON, M.A.,

Headmaster, the Grammar School, Lymm.

THE time seems to be now approaching when something like an authoritative survey of the position of co-education in this country, based upon a competent knowledge of the rapidly increasing numbers and widely divergent types of existing co-educational schools, may be reasonably expected. Hitherto we have had to go for our observation and practical knowledge of the system to a country in which the conditions are so different from those holding in our own country as to render the inferences obtained of dubious value. As a consequence the theorist and psychologist pure and simple have so far pretty completely occupied the field with us.

It is impossible to enter fully here into the scope and details of such an inquiry, but, broadly speaking, it would cover such points as the number of boys and girls in each school, the average age of entry and leaving both of boys and girls, the nature of the staff and curriculum, with especial reference to elasticity and adaptability to the requirements of the two sexes; to what extent discipline entailing the segregation of boys and girls in or out of school is enforced, the organisation of the social side of school life, and, perhaps, most important of all, the adequate grounds, if any, on which a co-educational school has been established in a given district, and what serious aims the governing body and staff have set before themselves.

It might perhaps be useful to illustrate briefly from the experience of the present writer in a day school of about 150 pupils, fairly equally divided from the point of view of sex, which is probably typical of a number of such schools. Omitting details which are of necessity common to schools of all types, the supreme authority is vested in the hands of the headmaster and senior mistress, the latter being entrusted with entire control over the girls' department, both as a body and individually, subject to due consultation from time to time with the headmaster. I emphasise particularly the position of the senior mistress at the outset, because there appears to be an erroneous conception in certain quarters that girls in co-educational schools are deprived of that feminine care and guidance which are so essential to them during the critical years of adolescence.

With regard to the vexed question of the curriculum, the classes are mixed for most subjects up to the age of 14, after which every effort is made, within the limits possible, to bifurcate the work of boys and girls, with as

much development of individual bent, apart from sex, after the age of 15 as can possibly be allowed. The details of such a scheme are too common and too well known to need discussion. The age of bifurcation, and certainly that of specialisation, is all too young, but regard has to be paid to the exigencies imposed by the leaving age, which is painfully early, especially in the case of the boys.

In a co-educational school in which the principles of self-government are carried out to the fullest extent possible, many details relating to school regulations and a pleasant school atmosphere will be in the hands of prefects, form monitors, and monitresses. The heavier manual work entailed will be in the hands of the monitor; the details of a more domestic and methodical character, such as the beautifying of the classroom with flowers, the writing up of the preparation charts, &c., will naturally be entrusted to girls. Too much stress cannot be laid on the importance of these details in the classroom.

The form system, entailing as it does a form master for some forms and a form mistress for others, whose duties towards their respective forms are for the most part of a business nature, cannot of necessity involve that personal relationship and care which the form system denotes in a good separate day school. For this reason, among others, it is doubtful whether a mixed school of more than 200 pupils is easily workable or desirable, unless a house system could be devised on a more ambitious scale than is usually possible in a day school. Full latitude for friendly intercourse, so far as any disposition to take advantage of it is shown, is permitted at all social gatherings, debates, concerts, lectures, &c. With regard to the much-discussed question of games, mixed tennis is always popular, and mixed hockey for girls and younger boys is fairly common, otherwise both games and physical exercises are separate.

Coming now to a brief consideration of one or two of the more or less permanent problems and difficulties of co-education, not enough has yet been written on the subject from the immediate point of view of the headmaster. For the purposes of this article, I am assuming the head-teacher to be a man, with a senior mistress in charge of the girls, but in fact it is abundantly evident that the question of the sex of the head-teacher must by no means be a foregone conclusion. This is a vital matter which governing bodies must take the responsibility of deciding in the best interests of the school and the locality, and it would be a thousand pities if the sordid differences at present darkening the outside world should invade the sacred precincts of co-education.

If, indeed, there be any atom of truth in the grave indictment recently levelled at girls' high schools by Sir A. Wright, co-education would seem to offer the only rational solution and cure. In this connection it is regrettable to note that a well-known headmistress, in a recent contribution on the subject, criticises a male headship on the ground that women assistant-teachers could not make their influence felt sufficiently, working under a man, while she naïvely affirms, by way, I suppose, of concluding the whole matter, that experience has shown that it is quite practicable for men assistants to work under a headmistress, if she has good common sense and practical experience of the world! The obvious inference is decidedly humorous. The real conclusion of the whole matter seems to be that the head-teacher must be supported by a senior assistant of the opposite sex holding special powers, and endowed with a liberal supply of experience and common sense, on whose personality the success of the school will largely depend morally, intellectually and financially. I mention the point of finance because, in existing circumstances, even the head-teacher's capitation fee is dependent on the success or failure of the senior assistant, a material but not unimportant point.

Psychologists are never weary of condemning the risk of overstrain on the part of girls in co-educational schools. Practical experience does not seem to justify their gloomy forebodings, provided the public examination bugbear is kept rigorously in the background till the age of 16, and preparation is kept within proper limits. On the other hand it is a serious and regrettable fact that the boys with their slower development and comparative disinclination for literary subjects should, in so many cases, leave school at a considerably earlier age than the girls. The result has been, in the present writer's experience, that a large proportion of the boys are apt to live under a temporary cloud of seeming intellectual inferiority. They cannot come into their own until it is too late, so far as the school is concerned. It would be interesting to study the returns of prize-winners in co-educational schools where prizes are awarded. I think these would largely confirm what I have experienced in the matter. The obvious remedy is to extend the school life of the boys by at least two years, but this is extremely difficult at present, especially in agricultural or manufacturing districts.

It is obvious that the utmost care will be needed in the selection of the staff. It is not everyone's province to teach a mixed class. Financial inducements of a much more substantial nature must be offered if the best

teachers are to be secured, and on this point the future of co-education must largely depend. It would seem especially desirable that the staff should not be too entirely drawn from mixed universities, and that a larger number of able teachers should be attracted to co-education from the older universities than is at present the case. When the best possible staff has been secured, it is very desirable that, during the period of bifurcation and specialisation, the boys should come so far as possible under the influence of the headmaster and the girls under that of the senior mistress.

Many of the minor difficulties of co-education are undoubtedly found easier of solution in the co-educational boarding schools, with their greater opportunities for corporate life and a social system, and one writer in a recent number of *The Times Educational Supplement* averred that the future of co-education in England must stand or fall by its success or failure in the boarding schools. The time for any dogmatic statement on such a difficult point is, of course, not yet ripe, but it may be questioned whether even co-educational boarding schools, though likely to offer a permanent solution of the great moral problem, would be so successful in overcoming that other insidious foe in boarding schools, the sacrificing of the individual to a carefully moulded type.

THE VALUE OF GEOGRAPHY AND HISTORY IN ELEMENTARY EDUCATION.¹

By RACHEL R. REID, M.A., D.Lit., F.R.Hist.S.,
Assistant to the Professor of English History,
University College, London.

THE question, What is the value of geography and history in elementary education? at once suggests others: What do we mean by geography and history? Why do we teach them? Why do we teach anything at all?

Most people, if asked what things they wish to have themselves or their children taught, would probably answer, "Things that are practically useful." The teaching of such things always has been and always will be necessary; but it may well be questioned whether the elementary school is the right place for giving it.

The elementary school is intended to meet the needs of all, and there are very few practically useful subjects of equal or nearly equal utility

¹ Abstract of a paper read at the National Conference on the Prevention of Destitution, June 12th, 1912.

to all: reading, writing, and simple arithmetic almost exhaust the list. Moreover, it is now generally recognised that in an era of rapidly changing economic conditions, when applied science is daily creating new industrial activities, and rendering obsolete recently perfected mechanical processes, there is no place for the man who can do only *one* thing properly; and the "practical man" is now at one with the educationist in asking that the children in our elementary schools should receive an education having as its end, not the acquisition of skill in one or more practically useful arts or crafts, but the development of the power to do things, the things not particularly mattering, since it is the power to do that matters.

Now, an education for such an end has as its first aim the freeing of the intelligence from the bonds of tradition, habit, prejudice and passion, and the training of the mind to accurate thinking as the indispensable condition, not only of scientific and technical progress, but of all political and social advance.

As an aim second only to the intellectual training must come the imparting of knowledge, not only as a foundation for sound thinking, but for its own sake. The human race has been on this planet for some considerable time, and has accumulated a good deal of information about it and about the conditions of life on it, besides arriving at certain conclusions about what it calls Nature and the universe and its own relation to them. It has taken a long time to arrive at the point we have now reached, and it is rather important that the next generation should not waste time in going over the same ground and making the same mistakes that we and our forefathers did.

There can, of course, be no question of teaching all that men have learnt, but only of teaching what man as an intellectual and as a social being requires to know. Some knowledge of the laws controlling natural phenomena, a clear notion of the surface of the earth and the working of wind, rain and tide, and the control exerted by them on human activities, some idea of man's social and political evolution: these are essential. To impart a fair knowledge of these things, with a definite knowledge, not only of the current conclusions, but of the manner in which they have been reached, and in the imparting to train the intelligence into freedom and right method, is not only within the scope of elementary education but should be the chief part of its true end.

From this point of view the value of geography and history in elementary education is very high, both for the sake of the information they give and as means of mental discipline.

According to the best of the current definitions, "Geography has to estimate the value for man of local conditions and place relations. It is concerned, therefore, with the earth's surface and the physical condition of its various parts; it takes note of the climates, products, and varieties of life which exist; it especially observes the human activities as determined by the physical conditions, and it applies general considerations to all the mass of detail thus gathered together."² Its method is, by investigation of particular facts in a circumscribed area, to arrive at general facts of wider application, of which the particular effects are only consequences and illustrations. Its aim, therefore, is to discover leading general facts or principles, and then to work out the consequences of these principles when operating in a new environment. In short, geography is both a science and an art. Concerned throughout as it is with physical realities, its study must be based on direct observation, and thus "one side of the work will train the [mind] in observation, classification and generalisation, and will impress the importance of going to the actual object for our conceptions."

A general introduction to scientific procedure will thus be given; judgment, accuracy, balance, reliance on the senses, will be developed. Mere observation, however, has definite limitations as a source of knowledge, and if the child is to have a true conception of the great world in all its variety and interest, his own observations must be supplemented by the observations of others whose results are recorded in books and maps. The imagination must at every turn be called into play; ordered and accurate mental pictures must be constructed; and the whole body of knowledge thus gained must be organised and integrated by constant comparison and by application of new knowledge in the familiar environment and of familiar knowledge in a new environment. It is at once evident that the study of geography calls for the constant use of the very power which distinguishes the man who can do things from the man who cannot, and is an instrument of the highest value for the training of the mind.

Geography, however, cannot afford all the training required for sound thinking. On the one hand, its data are all concrete, and its conclusions can be tested by experiment; on the other, its interest, although human, is seldom, if ever, personal, and there is little need to fear that emotional disturbances will divert the mind from sound thinking on geographical

² Report on the Conference on the Teaching of Geography in London Elementary Schools.

facts. "History," on the contrary, "is closely concerned with the kind of probability on which the conduct of life depends." It deals with the human, with life itself; it shows us the acts, the ideas, the motives of men living in society; it describes the usages, the institutions, the governments, all that determine the relations between men; thus it shows society under the form of particular and concrete examples. It does more; for it follows a single people through a succession of centuries, bringing to view the continual change undergone by society, government, manners, religion. To give the scholar an exact idea of the successive civilisations of the world, and a precise knowledge of the formation and development of his own country; to show him the action of the world on his country and of his country on the world; to teach him to render justice to all peoples; to widen the horizon of his mind; and finally to leave to him, with the knowledge of the state of his own country and of the world, a clear notion of his duty as the citizen of no mean State, and of his duty as a man: such is the part played by the teaching of history in education. It is a part the importance of which increases as democracy advances; for the peoples have succeeded to the power of the kings, and they must be not less well equipped to control the destinies of a great nation; but the roots of the present are in the past, and it is only by knowing and understanding that past that we can see clearly the work that lies before us. History would thus be worthy of a place in any adequate educational system, simply for the sake of the information it gives; but this, valuable as it is in preparing the scholar for life at a precise date or in determined conditions, is but a small part of the educational value of history.

Although history is not an exact science, since it has no axioms nor principles from which by deduction new truths can be established, yet it is neither a pageant nor a *chronique scandaleuse*, but in the true sense of the word a science. It is complex and human even as its subject-matter, which is man, a being swayed by his passions and directed by his prejudices. It is not, however, a mere collection of stories, a bare record of past events. "No past event has any intrinsic importance." Events are but the data with which history deals—they are not history itself; and the importance of any event depends on its meaning, on the idea of which it is the outcome, of which it is the cause. It is the idea behind the event that history seeks for, and the ideas when found must be grouped together, organised into a great whole. As the work proceeds, we realise that all things human transform

themselves without ceasing, that all life is but a becoming, that all human happenings are but an endless chain of cause and effect, that from the consequences of our acts and decisions there is no escape. Thus we are at once freed from an unreflecting fear of change, and saved from an equally unreflecting love of change for its own sake.

Uncertain and complex as are historical data, historical method is strictly scientific. As in other sciences, there are called into play the powers of attention and observation, imagination and memory, discrimination, selection, reasoning, judgment, expression. But these powers have to be trained and developed by means of data similar to the happenings and experiences of the individual life; and herein lies the distinctive educational value of history, for it alone among school subjects brings us into contact with life as it must be lived when school days are over.

The difficulty, nay, the impossibility, of ever learning the whole truth about a past event, while it demonstrates the need for accurate observation before passing judgment, affords a unique opportunity for discussion and for the expression of different opinions. So we learn that all truth is merely relative, that in human affairs there is nothing final, nothing absolute. We shall understand that no form of government is to be regarded as the ideally best without regard to the conditions in which it is to be adopted, that the value of economic systems is relative and depends on environment, that "moral standards are the painful achievements of ages," that "nothing is good or bad, but thinking makes it so"; and we shall cease to regard the man who differs from us in opinion as necessarily either a fool or a knave. The historical method and the historical spirit are revolutionising all sciences which have man and his activities as their subject-matter, and their extension to politics is the most urgent need of an age and a society which has placed political power in the hands of the masses.

Thus geography and history supplement one another. From the one we gain a clear notion of the working of the laws controlling natural phenomena as well as of the surface of the earth, and of the control exerted by them on human activities. From the other we gain some idea of man's social and political evolution, some sense of the relativity of truth, some insight into the springs of human action, some notion of the responsibility and the duty laid on men as members of a society. And from both subjects alike we gain that training which alone can loosen the bonds of tradition, prejudice, and passion, and give men intellectual freedom.

THE TEACHING OF MATHEMATICS IN THE UNITED KINGDOM.¹

By J. B. DALE, M.A.

Assistant Professor of Mathematics, King's College,
London.

THE former papers of this series have already been noticed in THE SCHOOL WORLD (Vol. xiii., p. 417). Taken in conjunction with those now before us, they form a comprehensive and elaborate survey of the whole field of mathematical education in the elementary and secondary schools of the country, showing both what is good and what is defective, recording the results achieved by new methods of teaching, and indicating the lines along which progress in the future is to be sought. To complete the series, however, it is necessary that there should be papers dealing with the Universities (we presume that these will be forthcoming in due course), for the Universities, through their local and matriculation examinations, exert an enormous, and from some points of view an undue, influence upon the curricula of the secondary schools. Abundant evidence of this is provided in Miss Story's paper on Mathematics in Public Secondary Schools for Girls. She points out that the determining factors in the organisation of mathematical teaching in girls' schools in England have been mainly (1) the training and qualifications of the mathematical mistresses, and (2) the syllabuses of the various "outside" examinations taken by the schoolgirls. The majority of the mistresses have taken an honours degree at the Universities, but only an extremely small proportion have received professional training in teaching. There has consequently been a marked tendency to disregard the requirements of the average students, and to frame the curriculum on lines specially suited to those who contemplate a mathematical course at the University. This condition of

affairs has, of course, not been a peculiarity of girls' schools. The average boy has suffered also; and we have no doubt that the greater degree of consideration which is now being given to him will benefit his sister as well.

The problem presented by the multiplicity and variety of the outside examinations is, however, that which calls most urgently for solution. The majority of them are conducted by the Universities, and the teachers who present their pupils for examination have little or no voice in framing the syllabuses. In the interests of all concerned, teachers and scholars alike, a simplification and unification of the whole examination system is desirable, and Miss Story refers to that in Scotland as one the success of which renders it worthy of transplantation to this side of the border.

The same question from the point of view of schools for boys is discussed by Mr. Hawkins, and the conclusions arrived at are in essential agreement with those of Miss Story. It is pointed out that examinations fall roughly into three classes:—(1) Competitive examinations for certain posts; (2) pass examinations to ascertain special ability, and (3) pass examinations as a test of a general good education. The last is a purely qualifying examination, and should be kept distinct from the second, although it is unfortunately the practice to try to perform the functions of the two by one examination.

Considerable space is devoted to a severe criticism of the London Matriculation Examination. It is maintained that the reputation it holds as a test of knowledge and ability is unmerited, that this reputation is largely based upon the fact that 50 per cent. of the candidates fail, and that in particular the mathematical syllabus is limited, and examiners habitually set difficult or catchy questions of a confusing type. We are unable to agree to the proposition that of the five or six thousand candidates who sit annually for this examination, 70 or 80 per cent. are really qualified to enter upon a University course of study; but on the other hand we agree that such a percentage of passes may reasonably be approached in a school-leaving examination.

There is probably room for difference of opinion regarding the character of the mathematical questions; it is sufficient to say that during the present transition period in the teaching of mathematics the task of the examiners has been no easy one, as it is practically impossible to frame a paper which will do justice to the wide diversities in the modes of instruction in the different schools presenting candidates. The paper is a valuable one, and should be very helpful to examiners,

¹ Special Reports on Educational Subjects. (Wyman.)

No. 9. "The Organisation of Mathematics in Public Secondary Schools for Girls." By Miss L. Story. 13*d*.

No. 10. "Examinations from the School Point of View." By C. Hawkins. 9*d*.

No. 11. "The Teaching of Mathematics to Young Children." By Miss I. Stephens. 13*d*.

No. 12. "Mathematics with Relation to Engineering Work in Schools." By T. S. Usherwood. 2*d*.

No. 13. "The Teaching of Arithmetic in Secondary Schools." By G. W. Palmer. 21*d*.

No. 14. "Examinations for Mathematical Scholarships." By F. S. Macaulay and W. J. Greenstreet. 3*d*.

No. 15. "The Educational Value of Geometry." By G. St. L. Carson. 13*d*.

No. 16. "A School Course in Advanced Geometry." By C. V. Durell. 13*d*.

No. 17. "Mathematics at Osborne and Dartmouth." By J. W. Mercer and C. E. Ashford. 23*d*.

No. 18. (i) "The Value of the Study of Mathematics in Public Secondary Schools for Girls." By Miss E. R. Gwatkin. (ii) "The Place of Mathematics in the Education of Girls and Women." By Miss S. A. Burstall.

(iii) "Higher Mathematics for Women." By Mrs. H. Sidgwick. 21*d*.

No. 19. "Mathematics in Scotch Schools." By G. A. Gibson. 3*d*.

No. 20. "The Calculus as a School Subject." By C. S. Jackson. 14*d*.

No. 21. "The Relation of Mathematics to Engineering at Cambridge." By B. Hopkinson. 13*d*.

especially University examiners, who have little actual experience of the school point of view.

In the paper on the "Teaching of Mathematics to Young Children," Miss Stephens describes what is practically a piece of research on the art of teaching arithmetic. The main conclusion is that the method of beginning the subject by an elaborate analysis of numbers does not provide a satisfactory basis for further work.

The introduction of technical work into some school courses has necessitated in such cases a consideration of the question how far the ordinary mathematics taught meets the practical requirements of the boys who intend to study engineering. Mr. Usherwood's experience leads him to the conclusion that there should not be any insuperable difficulty in devising a mathematical course that should be satisfactory to the scientific mind, and yet not so highly specialised as to be unsuited to non-engineers. The young engineer does not need highly specialised courses. Like so many of the other writers of these papers, Mr. Usherwood considers that the mathematical education of the schoolboy is incomplete without a knowledge of the principles of the calculus. It is interesting to find that he also achieved considerable success in introducing his boys to vector analysis. The majority of teachers will at present be inclined to look upon this branch of mathematics as a luxury; much will depend upon taste and inclination.

The paper by Mr. Palmer on "The Teaching of Arithmetic in Secondary Schools" is largely historical, contrasting the arithmetic of twenty-five years ago with that at the present day. Without disputing the substantial accuracy of the account given of the arithmetic of the earlier period, we are inclined to think he has applied the dark colours rather too heavily. Not all the text-books were as bad as those described. However, there is no doubt that much useless lumber has been got rid of, but there is still room for further excisions. We are, of course, handicapped by our absurd system of unrelated weights and measures; the adoption of a rational system would save much valuable time. Until this is done examining bodies might follow the example of the Civil Service Commissioners and print the tables on the covers of the examination books. Mr. Palmer's statements that a much higher standard of work in straightforward computation is needed, and that the methods now employed are often clumsy, and the general standard of accuracy is not high, will be supported by all bodies of examiners.

Although the number of boys who enter for

University scholarships is small compared with the total number in the schools, yet consideration for the interests of this minority has greatly influenced the work of the rest. Dr. Macaulay and Mr. Greenstreet, however, note that the evils inherent in such a system are now realised, and are being mitigated, so that the normal teaching is directed towards the average boy rather than to the candidate for University honours. In their paper the character of the scholarship examinations at the different Universities is described. The introduction of the general essay paper at Cambridge is a step in the right direction, and we agree with the writers that greater recognition of modern pure geometry is desirable.

Mr. Carson's essay on the "Educational Value of Geometry" is a thoughtful discussion of fundamental principles. Mr. Carson considers that whatever improvement has taken place in the teaching of geometry is due to the acquisition by secondary schools of better teachers rather than to the *abolition of Euclid*. On the whole we are inclined to agree with his conclusions as to the results of the recent changes in teaching, although recent correspondence in this magazine would indicate that a considerable number of teachers of experience would dissent from the views expressed.

Mr. Durell furnishes a scheme of higher geometry for schools, and we may add the junior classes of the University. He advocates the study of projective geometry and the welding together of the analytical, geometrical, and projective theory of the conic. Our own experience shows that this method of procedure not only economises time, but also stimulates the interest of the students.

Messrs. Ashford and Mercer furnish a very full account of the work done at Osborne and Dartmouth. It is clear that the instruction of the naval cadets is in good hands, and that so far as teaching can effect it, the first line of defence of this country will be managed by officers who are thoroughly conversant with the mechanism of the complex fighting machines which they control.

No one who is concerned with the education of girls and women can afford to neglect the three papers in No. 18 on our list. It is impossible to summarise them here in such a way as to do justice to them, especially as there exists considerable divergence of opinion between the distinguished writers. Miss Gwatkin maintains that it would be disastrous to general education were mathematics to cease to be a compulsory subject in University Entrance Examinations, while, on the other hand, its omission is advocated by Miss Burstall. Mrs. Sidgwick addresses herself to

a discussion of the question whether women of mathematical ability should be encouraged to study the subject for its own sake, or for its utility in the study of other subjects. She decides in favour of the first alternative.

In the paper on "Mathematics in Scotch Schools," Prof. Gibson summarises information which he has collected regarding the character of the instruction given in elementary and secondary schools. He refrains from criticism of the curricula and from advocacy of any particular views, but expresses himself as well satisfied with the results which are being obtained. He believes "that there is an amount of sound work in mathematics being done that has not been approached in any earlier period, and the improvement is due almost entirely to the relegation of the formal attitude to the later years of study."

The movement in favour of introducing boys to the calculus at a much earlier age than has been hitherto the case renders Mr. Jackson's paper of special interest at the present time. The whole matter is in the experimental stage, and this paper renders good service in stating clearly the questions which further experience may be expected to answer. The amount of previous knowledge requisite; the degree of rigour in demonstration; the method of introducing the exponential theorem and logarithms; the value of the graphical calculus; whether differentials or differential coefficients are to be used—these are some of the topics discussed and on which tentative conclusions are reached. Mr. Jackson is not dogmatic, and has a keen faculty of seeing all sides of the case.

In the last report Prof. Hopkinson gives an interesting account of the work of the Engineering School at Cambridge, and of its influence upon the mathematical teaching of the University.

PERSONAL PARAGRAPHS.

MR. GORDON INGLIS writes from the Commonwealth Offices to *The Times*, directing attention to a movement to perpetuate the memory of the late Mr. A. B. Weigall, C.M.G., who was for forty-six years headmaster of the Sydney Grammar School. Mr. Weigall was a scholar of Brasenose College, Oxford, and was appointed to the headmastership at Sydney in 1866; from that time until his death in 1912 he worked wholeheartedly for the good of the school. In 1867 there were nine masters, now there are thirty-five. During his tenure of office more than seven thousand boys passed through the school. The London address of the memorial committee is: The

Office of the High Commissioner for Australia, 72, Victoria Street, S.W.

* * *

THE place of the Rev. Canon Rowe as principal of the Lincoln Training College is to be filled by Miss Winifred A. Todhunter. The appointment of a lady instead of a clergyman is said to have been the wish of the Board of Education. Miss Todhunter was educated at Cheltenham Ladies' College and graduated in arts at London University, taking first-class honours in history; she has since taken a course at Oxford and a course in education under Prof. Adams at London University. She has been head of the training department at Exeter, mistress of method at Moorfields, and lecturer in history at Stockwell Training College.

* * *

MR. E. H. S. WALDE has been appointed headmaster of Chigwell School in succession to Canon Swallow. Mr. Walde was a scholar of Charterhouse and obtained a second class in Classical Mods. and a third class Litt. Hum. from Hertford College. He was a master at Marlborough, at Bradfield and, for the last ten years, at Berkhamsted School.

* * *

THE Governors of Crediton Grammar School have elected Mr. Frank Clark, mathematical master of Bromsgrove School, to the headmastership of their school. Mr. Clark was at Emmanuel College, Cambridge, and was eleventh wrangler in 1902. Before going to Bromsgrove he was an army tutor and a master at Mill Hill.

* * *

To commemorate the fact that Dr. McClure has been headmaster of Mill Hill School for twenty-one years, old Mill Hillians are erecting at Mill Hill a music school, and are having the doctor's portrait painted. At the dinner of the Association of Teachers in Technical Institutions Dr. McClure defined a schoolmaster as a man with an expensive education, the work of a nurse, the pay of a navvy, and the life of a dog. He also described an incident in his own dog's life; he was seen in his own grounds by a visitor and one of the boys; in response to the visitor's inquiry—"Who is that man?" the boy replied, "Sh', Sh', that's not a man, that's the Headmaster."

* * *

THE President of the Association of Teachers in Technical Institutions is Dr. James Clark. Dr. Clark became a lecturer at Downton College of Agriculture in 1890, lecturer on agricultural chemistry and botany at Yorkshire College, Leeds, in 1891, professor of

agriculture at the same college in 1897, and principal of the Technical School at Truro in 1899. He is a member of the Cornwall Education Committee and is the author of "The Birds of Cornwall." He is obviously a Scot, a man of few words, with considerable driving power, though at times he might be mistaken for a dreamer.

* * *

THE honorary secretary of the A.T.T.I. is Mr. Abbott, mathematical master at the secondary school of the Regent Street Polytechnic and senior lecturer in mathematics at the evening classes. He works not only for that association but also for the London branch of the Mathematical Association. He has represented the A.T.T.I. on various committees that have been at work upon the subject of pensions, and before pensions came into the field of practical politics he did a good deal of work in connection with the insurance of teachers. At the dinner mentioned above Mr. Paley Yorke sang a parody, in which he referred to Mr. Abbott and to Mr. Wilson, the head of the chemical department of the Battersea Polytechnic, another energetic worker for his association where its activities touch those of other teachers.

* * *

THE representatives of the various bodies of teachers on the Teachers' Council are now being announced. Miss Lees, Dr. McClure, and Mr. Somerville have already been mentioned recently in these paragraphs. The training colleges are to be represented by Prof. Adams. He is a man of wide experience, first a master in a Glasgow board school, then a headmaster of a mixed board school, next Rector of Campbelltown Grammar School, and afterwards principal of the United Free Church Training College; for three years before coming to London he was lecturer on education at the University of Glasgow. Now he is, as doubtless all readers of THE SCHOOL WORLD know, professor of education at the University of London and principal of the London Day Training College. Prof. Adams is a philosopher, a psychologist, and a humorist, and, strange to say, sufficient of a humorist to combine the three; in order to test this statement anyone who has not done so should read his "Herbartian Psychology," and a little book—addressed to Sunday-school teachers, I believe—on teaching.

* * *

THE Headmasters' Conference has appointed Dr. Gow as its representative; he has taken a prominent part in the discussions on the whole question of registration since

the failure of the last Registration Council. Before coming to Westminster as headmaster in 1901 he was headmaster of Nottingham High School, an office he had held for some sixteen years. From 1899 to 1904 Dr. Gow was a member of the Consultative Committee of the Board of Education; about that time he was a prominent member of the Headmasters' Association and for three or four years its president. It was in 1902 that Dr. Gow took Orders.

* * *

THE University of London is sending to the Teachers' Council its principal, Sir Henry Miers. He was the chairman of the Education Section at the meetings of the British Association at Sheffield and one of the most prominent of the members of the committee that sat to inquire into the overlapping of secondary-school and university work, a committee the work of which was suggested by his presidential address to the Education Section in 1910.

* * *

MR. GEORGE O. MAY, of New York, has presented to Blundell's School a thousand pounds in grateful appreciation of the benefits he received while at school, especially while under the tuition of Mr. J. M. Thornton. Mr. May wishes the sum to be used in the founding of a Thornton scholarship. Mr. Thornton, who was educated at Almondbury Grammar School and Owens College, Manchester, was fourth wrangler in 1882, has been a master at Blundell's since 1884, and a house-master since 1893.

* * *

MR. A. R. BLACKBURN, chemistry master at the Widnes Secondary School, has been appointed headmaster of Staveley Grammar School, a school at which he was formerly a master for four years. He has held master-ships at Fareham Modern School, Wolverhampton Grammar School, and Runcorn Institute School.

* * *

THE new headmaster of Milton Abbas Grammar School, Blandford, is Mr. E. T. H. Royds. Mr. Royds has held master-ships at Edgbaston Preparatory, Ipswich Middle, Witton Grammar School, Northwich, and at Friars School, Bangor.

ONLOOKER.

American Colonial History. By R. L. Ashley. xix+126 pp. (New York: The Macmillan Co.) 2s. 6d. net.—This book contains part i. of the author's "American History." It is intended for use in secondary schools in the United States, and tells of the colonisation of that country by European States in the sixteenth and seventeenth centuries, with the usual wealth of maps, bibliographical references, questions, &c.

THE TEACHING OF ELEMENTARY GEOGRAPHY.

THE eighth of the series of memoranda which are being published by the Scotch Education Department for the guidance of the teachers in Scottish primary schools deals with the subject of geography.¹

The memorandum contains six sections, the first two of which deal respectively with the scope and development of elementary geography. The next three sections refer, in turn, to three stages into which the teaching of geography is divided—preparatory, systematic, and supplementary. Finally there is a note on method which also leads to the two appendices containing suggestions for a syllabus of weather study, and for the study of local geography from Ordnance survey maps.

The memorandum is replete with suggestions, many of which are so valuable as to bear repetition and emphasis. The scope of elementary geography is concisely summarised in the paragraph:

The interests of British citizens are world-wide, and so should their sympathies be. For us, at least, elementary geography cannot stop at Scotland, or the British Isles, or even the British Empire. In our schools the true unit for elementary geography is the world at large. And geographical theory bears this out.

The world at large has many aspects, but to the ordinary citizen its most important aspect is that in which it is regarded as the scene of life, above all of human life. This is the true point of view for elementary geography; other aspects are subsidiary to this.

After discussing the twofold aspect—the observational and the descriptive—of geographical teaching, a plea is put forth for the fundamental notion that geography is based upon observation, and that unless the results of observation are expanded in imagination to an intelligent outlook over the world at large, the plane of nature study has not been left and the plane of geography has not been reached.

The three stages of treatment are as follows:

First comes a preparatory stage, when the child begins, on the one hand, to explore his surroundings as a whole and as they come, not distinguishing those different aspects which will presently appear as separate subjects; and, on the other hand, is filling his imagination with pictures of strange lands and peoples. Next follows a systematic stage, when geography emerges from nature-study and history, and the observed facts are connected and gathered into groups; while on the side of world-geography the

mental pictures of the first stage are set out upon the globe and brought into relations—at first merely spatial. Thirdly, in the supplementary course a return will be made upon the home region, and a more rational synthesis of its phenomena attempted, while the systematic world-geography of the second stage is passed in review with an eye to its practical bearings on life and citizenship, and some special aspect of it is more carefully investigated in the same spirit.

The stage of transference from nature study to geography is indicated in the words:

The supplementing of direct observation by descriptions and pictures belongs to another part of this discussion. But, whether directly or indirectly, we have to give the children clear conceptions of the main land and water forms, not only of the conventional definitions of hill, cape, gulf, isthmus, and the like—many of which, indeed, are of little consequence, and should not in any case be introduced until they are needed—but of all the more obvious aspects of a countryside, of the difference between town and country, highland and lowland, moorland, woodland, grassland, ploughland, and sea beach. This has to be done deliberately, for children do not of themselves pay much attention to the larger and more distant features of a landscape—

which suggest a rational treatment of the conventional definitions of cape, bay, &c. In the preparatory stage

so long as the face of the earth is gradually dotted in this way with points of light, the topographical order is of no consequence, and the teacher is free to obey suggestions from kindred subjects, *e.g.*, from the Bible lesson, as in the instance just cited; above all, from the observation lessons by which the child's knowledge of his own world is being developed. Thus the conditions of life in the Arctic regions are not unintelligible to children who have lived through a Scottish winter; and the knowledge of Arctic conditions will give a new interest and significance to observational lessons on a winter's day at home—

and the necessity of emphasising the human element in geography from the earliest days is such that

in the study of man attention should be drawn to racial traits like colour, and to food, dress, houses, and weapons, *i.e.*, to the means by which in every region man supplies his primary needs. Man should be represented on a typical background in characteristic attitudes or occupations—the Eskimo on an ice-field pursuing seals, the Bedwin with his camel in the desert, the Chinaman at work in his rice-patch—so as to illustrate the various stages of civilisation co-existing on the earth to-day.

The traditional view that the homeland is the first land which should receive systematic treatment is endorsed:

The first country studied in any detail should be Scotland. For one thing, the scholars are now

¹ Memorandum on the Teaching of Geography in Scottish Primary Schools. (Wymans.) 23d.

beginning, or are about to begin, the systematic study of Scottish history, and they need a topographical framework for the numerous place-names that they will encounter.

After this the following order of treatment is suggested :

(1) Europe (especially north-western Europe), with a revisal of Canada and the United States; (2) Africa (especially South Africa) and Australasia, with a second glance at South America; (3) Asia (especially India); (4) the British Isles in detail.

In the stage of systematic descriptive geography

The pupils will also continue to observe human occupations, institutions, and modes of life, beginning with those that supply our primary material needs—the need for food, dress, and shelter—and noting how these are conditioned by locality. They will advance to the idea of the division of labour, with consequent interchange of raw materials and products; whence arises the need for means of communication, which again are conditioned by locality. This is the beginning of economic geography. The pupils should also observe some of the ways in which men seek to supply their higher needs, social or spiritual—such buildings as the school, church, town house, and such functionaries as the schoolmaster, clergyman, magistrate. These latter observations perhaps belong rather to the study of history, but in the elementary school it matters little to what subject they are referred. The main thing is that the children should begin to gather from actual experience some conception of the dependence of men upon one another, and of all mankind upon nature.

As an illustration of the method teachers might adopt with beneficial results, an outline is provided of the study of Japan at the different stages; this may conveniently be summarised :

(1) In the infant or lower junior classes we shall speak, not of Japan, but of the Japanese. We shall describe these strange yellow people, and their light houses, with paper partitions. We shall show pictures of them . . . and of their houses. We shall exhibit, if we can, some specimen of their handiwork—a doll, a lantern, a vase, or a fan—to prove that these Japanese are no savages, but a clever, artistic nation. Of their home we shall say no more than that they live in a sunny land, far to the East, near the Chinese, whom they resemble.

(2) When we reach Japan in our first systematic world-survey, our main object will be to locate pretty definitely the home of these Japanese. We shall remind the children of their former lessons, re-exhibit the pictures and specimens, and then let them hunt for Japan on the globe. When they have found it, let them discover (still from globe or map) how it lies from the equator and from us, off what continent, in what ocean, near what countries. They can see that it is nearer the equator than we are; they should infer that it will be warmer than Britain, and will

grow things for which Britain is too cold. Let them run the latitude to Italy, and compare its temperature and productions with those of Japan. . . .

(3) When next we touch upon Japan, it will be in the course of a systematic survey of the Asiatic continent, and the point of view will be more definitely geographical. . . . The position of Japan upon the eastern margin of the Old World may next be compared with the position of Britain upon the western margin, and their climates compared with one another and contrasted with the continental climate of Siberia and the monsoon climate of China, in both of which, however, parts of the Japanese Empire share. In structure, Japan will be seen to be part of the volcanic chain—the “girdle of fire”—that surrounds the Pacific. . . . The structure of the land need not be gone into farther than to show how it is broken up by mountains and seas, like Greece. Of productions, the bamboo, the soya bean, silk, rice, and tea may be mentioned, with reference to the latitude, the climate, and the volcanic soil; comparisons may be instituted with other countries that have similar productions. The probable exports can be inferred, and the sea-route to Britain followed on the wall-map. . . .

(4) If time suffices, or occasion invites, a final reference to Japan in the supplementary course stage would consider more particularly the recent history of that Empire, its resources, and its importance in the world.

The importance of a memorandum so excellent as this is not confined to the particular class for which it is written, but should reach teachers of the elements of geography to all grades and ages of pupils.

THE PLACE OF GRAMMAR IN THE TEACHING OF ENGLISH.

IN the Board of Education Circular on “The Teaching of English in Secondary Schools” (Circular 753), issued early last year, it is stated that “Grammar should not bulk largely in the regular school teaching of English, and it should not be isolated from composition and literature and made into an abstract exercise. Whole lesson-periods should not be systematically given up to formal grammar. . . .”

There is certainly a difference of opinion among teachers of English as to the position which the study of grammar should take—whether, that is, it should be formal or purely incidental to the work in literature. Believing that the expression of competent opinions from schoolmasters and schoolmistresses of experience upon this question would be welcomed, we invited brief statements of the views of a number of experienced teachers, and their ready response has resulted in the subjoined symposium which we believe will be of interest and service to teachers of English generally.

An endeavour has been made to secure representative opinion, but it is inevitable that there should be many teachers and others interested in the subject to whom our circular was not sent. We need scarcely add that additional expressions of views from any readers concerned with the study or teaching of English will be welcomed.

W. J. ADDIS, M.A.,

Headmaster, the County Secondary School for Boys,
Brockley, S.E.

WHEN we are speaking of, or teaching, grammar *qua* grammar, it is, of course, for the moment isolated from literature—if "literature" is understood as comprising the matter or the artistic form of the passage. What the Circular probably means—if one may, without *lèse majesté*, venture to interpret—is merely that the word "grammar" should not have a place in the written time-table of the school. As to "whole lesson-periods systematically given up to" grammar, it appears to me that this is a really better way of dealing with grammar than by appending it, with more or less casualty, to the English lesson of any other *genre*. It is only in the "systematic" way that we shape and co-ordinate our instruction in grammar, and so cover the whole field—or as much of the field as we care to cover.

If we wait on the literature or the composition lesson to give us here and there stray, disconnected grammatical opportunities, then these lessons make our grammar syllabus for us, and we have, when the term or the year is over, a quite patchworky account to give of grammatical instruction or attainment. Again, by grammatical interceptions we often adulterate very unhappily the literature or composition teaching in any given lesson. Each of these, like all lessons, runs better and more impressively when the minds of the class are caught up, as it were, in a certain spirit or *afflatus* proper to that lesson or subject; and one will detect, as one teaches, how this spirit gradually rises and maintains itself in the class by one's judicious care of it, and how a foreign or inharmonious element allowed to enter the lesson will vitiate, like a harsh cross-wind, the proper atmosphere one has induced. This, I think, is apt to occur with these draggings-in of grammar. To spoil the appreciations of majesty, of architectony, of rhythm-sweep, of phrase-selection in, say, Gray's "Bard"—or, rather, to jar these appreciations, which are all truly literary appreciations, as they are slowly and cumulatively gathering force in the pupils' minds, by sudden plunges into the anatomy of the gerund, the dative case, or what not—is to commit a blunder, not to say a crime, in the difficult and dexterous art of "teaching" literature.

Composition is, of course, in large inevitable fields of it, a much more earthy, pedestrian, inclusive area than literature—I mean as regards the lessons we give in it. Grammatical structure and fabric are so integrally involved in a pupil's mastery of expression that they can scarcely be evaded, even if one tried to evade them, in a composition lesson. Still, even here

there is a more possible, and a less; and it is better in composition, too, to minimise, so far as possible, the linguistic or grammatical emphasis of our teaching in favour of the literary emphasis in it—the rhythms, the balances, the segmentations, the nexus. So that, on the whole, I certainly advocate the separation of grammar as a lesson, believing that while useful and well-nigh inescapable grammatical inculcations are to be provided in *all* lessons, and particularly in English lessons, these should take the form of mere references, reminders, and *obiter dicta*, while the serious, deliberate study of grammar as a *corpus* of facts, practices, and tendencies should be, and can only be, reserved for definite and segregated lessons.

As a matter of experience, I must say that, after years of watching the results of English as now generally taught to younger boys, it appears to me that the fundamental brain work which should underlie all a boy's understanding of, and experiments in, language has been seriously weakened by the neglect of grammar teaching. The line of least resistance for the teacher has been the line of least advantage for the pupil. I should welcome a definite restoration, on well-considered lines, of grammar as an exacted subject in all elementary schools; not the grammar of rote (which, I believe, was the rock on which wreckage was formerly experienced), but the grammar of reason, demanding thought, plan, and skill from the teacher, and securing in the pupil the reflection of that demand.

ARTHUR BURRELL, M.A.

Principal of Borough Road College, Isleworth.

It seems to me that the question should run thus: "Why do we ask for grammar teaching at all?" If the answer be that the teaching of grammar is admirable as a means for sharpening the wits, surely we may reply that there are plenty of other subjects on which we may rely for this purpose. If, again, the answer be that by grammar alone can we hope to write good English, the reply should be that we disbelieve such a claim. But if we are told that only by learning foreign grammar can we hope to write a foreign language correctly, then, I fear, we must admit that the grammarians make good their plea. You cannot write Latin, Greek, French, or German without grammar teaching.

This, however, does not seem to be the point at issue; and while we may concede the Latin grammar to the Latin learner, we need not demand English grammar for the student of English. By imitation, by reading, by composition, he learns his unexplained grammar; at any rate, he learns quite enough practical grammar to serve his purpose. Other grammar (the fascinating historical grammar, for instance) is a luxury; while the grammar that is usually taught is not grammar at all, but logic, or psychology, or rhetoric, and, interesting though it is, should not be touched until the higher forms in secondary schools are reached; even then the thought rather than the terminology should be studied.

That all advanced students who are careful over

their English require some study of grammar seems a reasonable position, but that a difficult subject which we can well do without should be continued in lower classes seems unreasonable. Besides, anyone who knows the history of English could write down in a minute three questions which nine grammar teachers out of ten could not answer. I would plead for no grammar lessons in lower classes and for very interesting grammar lessons, without too much terminology, in higher classes; while in the teaching of foreign languages explained grammar should go hand in hand with composition and with memorised phrases.

F. A. CAVENAGH, M.A.,

Assistant-master, King Edward VII. School, Lytham.

THE position of English grammar naturally depends on the purpose for which it is taught. Grammar was formerly regarded as mental gymnastic, and used (in Cardinal Newman's words) "to impress upon a boy's mind the idea of science, method, order, principle, and system; of rule and exception, of richness and harmony." But in the modern curriculum this training is handed over to other subjects: there is no time to study formal grammar as an end in itself.

We must therefore regard English grammar as subservient to the learning of languages; first to that of the mother-tongue, and secondly to that of foreign languages. A minimum course should be mapped out, having both these purposes in view. My own opinion is that a sufficient amount of grammar cannot be taught incidentally; except in the early stages (say Forms I. and II.), one lesson (or parts of more than one) must be set aside for its study. By this means it is possible to get through the requisite amount by the end of Form IV.; and it will be found that grammar can be taught most quickly and effectively at about the stage reached in that form.

Grammar connects itself naturally with composition rather than literature—indeed, it is usually a mistake to drag it into a literature lesson. So far as possible, mistakes in composition should be corrected by the class as a grammatical exercise. Again, since rules should be reached from copious examples, grammar lessons provide practice in one form of oral composition. Word-formation, too, one of the most important parts of the English work, lies between grammar and composition.

It is essential that the same grammatical terms should, wherever possible, be used for the different languages taught, and that their meaning should first be mastered in English.

In an ideal course under modern conditions, every piece of grammar taught would have in view some definite aim beyond itself.

R. F. CHOLMELEY, M.A.,

Headmaster, Owen's School, Islington.

IN reply to your communication on the teaching of formal grammar I should like to observe:—

1. That in the earlier stages of education, where no foreign language is learnt, English grammar is

a good subject, and interesting to most children if they are not given to understand that it is dull. Properly taught, it predisposes to scientific analysis, and is therefore a valuable preliminary to scientific studies of other kinds.

2. That so soon as a foreign language is learnt, the English grammar lesson can generally be confined to a small quantity of parsing and analysis very accurately done. If grammar is to be studied as a science, any language is more suitable for the purpose than English, always provided that the relations between English and the foreign language are duly attended to. No lesson in formal grammar should occupy as much as a whole period; half an hour is enough and usually more than enough. The worst mistake possible is to suppose that by teaching grammar we can teach composition; next to that is the failure to recognise that, however much or little grammar is taught, it will be worthless unless it is taught as a science, with as much accuracy as would be expected in the case of any other kind of scientific teaching.

The combination of the grammar and literature lesson is apt to spoil both subjects unless this kind of danger is foreseen.

G. E. S. COXHEAD, M.A.,

Headmaster, the Grammar School, Hinckley.

ALL grammar is in its nature corrective, not creative—a principle of real service in steering through the difficulties that surround its position as a school subject and its method of application. Where speech and writing are of high standard from childhood, the necessity for correction is obviously less, hence the importance of English grammar will vary from school to school. But latterly a democratic wave has passed over the great bulk of our secondary schools, and with it the value of formal grammar has proportionately increased. Further, the decline of classical study has accentuated this increase. Though I agree with the attitude taken up by the Board of Education's Circular on the Teaching of English (No. 753) that the teaching of English grammar should not be based on that of Latin grammar, yet I hold that the power to understand and apply one brake helps one to understand and apply another, even if worked on a different principle. And the operator who has mastered a second brake will find it increasingly easier to master its successors. In the study of successive languages it is not the grammar that presents the chief difficulty, but their turns of speech, their idioms, their atmosphere. I think, then, that to-day English grammar is of considerable importance in most secondary schools.

Next comes the question: Should the subject be formally taught as an end in itself, or should it be incidental to work in language and literature? My answer would again be found in the principle with which this note opens. The inventor of a machine must first devise the machine itself, and by actual practice discover the nature of its tendency to deviation, before he busies his wits concerning a corrective. Attempts must be made to speak and write con-

nectedly before attention is directed to the faults to which such attempts are liable. In this view the function of grammar is strictly as an incidental to oral and written composition. I would emphasise the connection between grammar and composition as distinguished from literature. The reading of literature is for a boy's writing what the listening to good speech is for his speaking, the model on which insensibly to base his efforts. It is with the rectifying of the mistakes in these efforts that formal grammar is primarily concerned. Ignorance of this intimate bond between grammar and his own speech and writing is the chief cause of many a boy's yoked proficiency in analysis and inability to express his own thoughts. Unconsciously he holds the "rules" to be for other people's writing, and when he awakes to the truth immortalises grammar as M. Jourdain immortalised prose. Once he has obtained a reasonable grip over his power of expressing himself it will be time enough for him to examine more closely how other people have expressed themselves, which will then serve not merely to strengthen his power, but should be made to give him some comprehension of the fact that language is a living thing and has developed. The earlier stages of the teaching of grammar therefore may well be directed towards showing him from his own efforts how the language is spoken and written to-day, and the later towards enlarging his grasp of this by studying how better minds than his own express themselves, and that this is an outcome of how they have expressed themselves.

A brief outline, in conclusion, as to how this might be worked in practice. In the earlier stage grammar would be incidental to oral and written composition. To avoid haphazard instruction not all mistakes would be corrected, but the teacher would follow the "course" of some outline text-book, unless—what is usually better—possessed of a plan framed on his own experience. The only book the boys would require would consist chiefly of exercises and supplementary questions. Here would be acquired some knowledge of the shapes of our words and the salient structures of our sentences. The later stage would introduce an increasing amount of literature study, to familiarise the boy with greater complexity of structure and variety of expression. Here would be the natural place of all analysis and paraphrase. Towards its close the illustrations chosen would range over some considerable time to accustom him to the idea of development of structure. The text-book would not purport to be an exposition of formal grammar, but would be in harmony with these general aims.

J. H. FOWLER, M.A.,
Assistant-master, Clifton College.

GRAMMAR is so purely a means to an end—and it is so unattractive a study to most young people—that I strongly support the recommendation of the Board of Education. The ordinary text-book seems to me to elaborate the subject unnecessarily, and it tends to lay down rules in too stiff and arbitrary a

fashion. The refinements of grammar are so largely matters of usage that they are far better picked up insensibly from the reading of the best authors than learnt from a manual.

Exercises in the correction of mistakes are a good test of a pupil's knowledge of the language; but perhaps a caution may be fitting as to their excessive employment. It is not good to accustom the eye to the sight of ungrammatical sentences in print. The ideal thing is certainly to "know the bad by the rule of the good"—not *vice versa*. On the other hand, the mature schoolmaster—and here and there a boy of literary tastes—may get some pleasant intellectual stimulus from a book like "The King's English." But a campaign against the excessive cult of grammar should not lead us into any laxity as to essentials. A clear understanding of the functions of the several parts of speech seems to me a prime necessity. We see the consequences of the neglect of this in a good deal of current journalism—in unfinished clauses doing duty for complete sentences, and perhaps in the preference for the ugly adjective-substantive, as in "woman suffrage" or "the Children Act."

NORMAN L. FRAZER, M.A.

Headmaster, the Grammar School, Batley, Yorks.

GRAMMAR is one of the most venerable subjects in the school curriculum. Originally it *was* the curriculum. In course of time pressure of other subjects deposed it from its high place; and because the curriculum has come to be a chaotic jumble rather than a reasoned plan, grammar, albeit in a strangely disguised form, still survives. For when we now speak of the teaching of grammar we mean, not the science which is the basis of all language, but the practical usages which are the marks of a particular language. In point of fact, there is room in our modern system of education for both kinds; but, if taught, they must be taught at different times and in different ways. For grammar as the science of language there is still a place, but perhaps not in the secondary school with a leaving age of sixteen, or at any rate, if given in such schools, the teaching must be reserved for the end of the course and be placed in the hands of a highly trained teacher. In such circumstances the teaching may be—indeed, should be—as formal as that of any other science.

I often wonder whether people who protest against "formal" grammar do not really mean that they wish grammar to be taught "inductively." And if, as I think is nearly always the case, we mean by the teaching of grammar the inculcation of the usages of particular languages, then surely the best method is the inductive. But so long as we pursue this method, why teach grammar "incidentally"? Are we quite honest in this "incidental" mode of teaching? Composition, oral or written, is concerned with another aim than correctness of language—it is concerned with the artistic and orderly expression of thought. It is only ignorance of psychology that has pandered to the modern

heresy that drill is distasteful or unsuitable to the child of twelve.

At the back of all questions of method lies the great social fact that in secondary schools to-day there are two classes of pupils: those who are already practising a correct usage and those who are not; the latter require different treatment from the former, and in their case the composition lessons may justifiably be hampered by dealing with certain points of grammar—in the narrow sense—which are wholly unnecessary in the case of the others.

An inductive method, therefore, which indeed in the very earliest stages only may appear rather entangled with composition, together with a reasonable amount of drill, should give as adequate a knowledge of grammar as children in the average secondary school require. In later stages there seems no reason why grammar in this sense should be taught at all. Those, however, who wish to teach it then as a kind of logical mental training may no doubt support their position by many plausible arguments; the best exposition of their case is, I believe, to be found in an extremely interesting little book published four years ago by Miss Laura Brackenbury under the title "The Teaching of Grammar."

J. INCH LOW, M.A.,

English Master, The High School, Stirling.

My experience of teaching English in secondary schools emboldens me to assert that regular lessons in grammar are distinctly profitable. When the number of weekly periods devoted to English proper is four or five—a typical time allowance—one of these should not be grudged for grammar study; but few of us, I presume, in these days of "reform methods," think of isolating the grammar lessons entirely from lessons in literature and composition. The epithet "formal" has for some years been in bad odour, but formal lessons need not be dry or fruitless; lively subject-matter can be chosen; humorous blunders, schoolboy slang, provincialisms, should be freely drawn upon. Constructive exercises, such as find place in many text-books, are removing from grammar lessons the reproach of barrenness that has until recently been levelled against many other school lessons, *e.g.*, geography. A broad treatment of sentence analysis, with free handling of adjunct phrases and with insistence everywhere on function rather than form, provides a valuable corrective to the fatal facility in mere word-spinning and the slipshodness of construction that have resulted, both in Britain and America, from the carnival of "free composition" and "extensive" reading instituted in the last decade.

The practice of making instruction in grammar purely "incidental" is, in all but the highest classes, as unsatisfactory as the incidental almsgiving of the easy-minded citizen. For example, you cannot lead your pupils to avoid the many pitfalls associated with the blind use of gerunds and participles save by several formal lessons on the infinitive forms of the verb.

Grammar is not merely the handmaiden of com-

position; in secondary schools, at least, teachers should ponder well the words of Prof. Whitney: "That the leading object of the study of English grammar is to teach the correct use of English is in my view an error, and one which is gradually becoming removed, giving way to the sounder opinion that grammar is a reflective study of language, for a variety of purposes, of which correctness is only one, and a secondary or subordinate one—by no means unimportant, but best attained indirectly. . . . To teach English grammar to an English speaker is, as it seems to me, to take advantage of the fact that the pupil knows the facts of the language in order to turn his attention to the underlying principles and relations, to the philosophy of language as illustrated in his own use of it, in a more effective manner than is otherwise possible."

D. MACGILLIVRAY, M.A.,

Headmaster, Bellahouston Academy, Govan,
Glasgow.

GRAMMAR has so long dominated the whole field of English instruction that no regret need be expressed if it is relegated to a rather insignificant position in the Board of Education's Circular. The sterile methods of the old grammar teaching made the English lesson anything but a delight to past generations of pupils. At an age when little should be expected in the way of abstract reasoning, pupils were called upon to deal with grammatical niceties and verbal subtleties quite beyond their powers of apprehension.

When the reaction against this pedantic procedure came it took the form in many schools of total neglect of the subject. It was believed that pupils could be taught to speak and understand and read and write English without any knowledge of the laws of grammar. The study of good authors and the practice of correct speech were considered certain avenues to the command of clear and forcible English. But it was soon found that imitation and empiricism were not altogether safe guides. In the poorer districts the colloquial language of the street and the home makes appeal to good usage and the practice of correct speech meaningless. Certain standards and criteria were found necessary by which to distinguish right use from wrong. It was felt, too, that pupils were entitled to something more than the "I say so" of the teacher for the explanation of corrections, and so a return was made to a more rational attitude towards grammar teaching.

The terms of the Board of Education's Circular seem to me to be generally satisfactory. It rightly insists that grammar must not be regarded as an end in itself, but solely as an auxiliary to the study of English. I am inclined, however, to question whether it is wise to ban the allocation of definite lesson periods to the subject. It appears to me that if any real progress is to be made in language study it can only be got by giving regular and systematic lessons to it. It is not necessary for this purpose that the English time-table should be parcelled out into hard and fast lesson periods, from which no deviation could be made, and probably that is all

that is intended by the terms of the Circular. But many contend that there should be no formal lessons on the subject at all; that all the instruction should be given as an incidental part of the composition and literature lesson. I think that the treatment of the subject in this unsystematic and haphazard fashion will deprive it not only of all disciplinary value in abstract reasoning, but of all real value as an aid to language study. It might be possible to frame a composition and literature course that would illustrate the main principles of grammatical usage by a series of logical gradations, but so far as I am aware this has never been done, and certainly the average English teacher cannot do it. Pupils taught on this desultory system will have great gaps in their grammatical knowledge that will prove a serious handicap to them in the study of foreign languages. We ought to recognise that there are two sides to the study of the mother-tongue, the study of language and the study of literature. The appreciation of literature depends to a considerable extent upon the appreciation of language, that is, of the usages, functions, and life-histories of words. Of such study grammar is an integral part, and is quite as worthy of its place (always a subordinate one) as any other branch of English study.

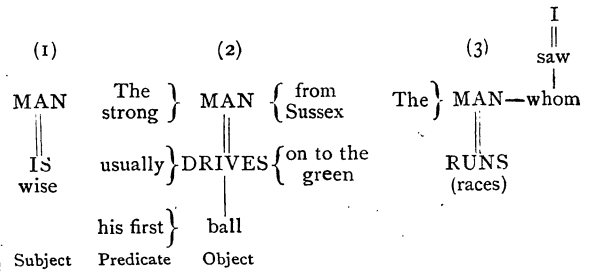
Pupils at an early stage should be given the correct grammatical perspective. They should be shown that grammar is not an arbitrary code of laws superimposed on language by grammarians and grammar books, but a body of rules derived from a study of the writing and speech of the best educated people. In particular they should, by many illustrations, be got to realise that these rules are not fixed for all time, but are changing from age to age, so that the correct usage of one age becomes the wrong of another, and *vice versa*. In this way they will see the necessity for constantly keeping their formal language study in close touch with literature and composition. The danger to be avoided is not the separation of grammar periods from other English periods, but the separation of grammar from the touchstone of living speech and composition.

G. R. MITCHELL, B.A.,

Assistant-master, Liverpool Collegiate School.

I TAKE it the word is to be brief. Interpreted widely and wisely, the Board recommendations seem quite sound. The days of paging out a text-book to be worked in set lessons from Form I. upwards are surely gone. The view to the other extreme is the epigrammatic utterance of a headmaster of mine that what passes for English grammar may be inscribed on a threepenny piece. True; but, after all, such would need much painful experience in "composition and précis," and in this it seems to me lies the proper place for learning one's English grammar. It cannot be learnt apart with intelligent interest. After all, the grammar is but the rule for working acquired with increasing knowledge and skill in the use of one's own language. The youngster surely needs no text-book with set lessons in grammar—foreign plurals he runs as he reads; gender and case,

which, indeed, scarcely exist, need no separate chapter and lesson to add to his list of dull, dreary periods. In his sentence building, his supplying of suitable epithets, his discovering of missing words, &c., &c., he makes his own parts of speech. Some such simple scheme of analysis as the following suffices to keep him quiet for his half-hour's drill for home work, and occasionally, too, in school he may handle these toys:—



Here he improves his composition and learns to enlarge his subjects and extend his predicates, and at the same time soon recognises the convenience of inventing and using suitable labels. Such simple parsing as is required he deals with in a similar way. As the pupil progresses and begins to write his essays, &c., his simple sentences are taken and combined to form compound and complex. Soon he appreciates the value of paragraphs both to his reader and most of all to himself. He recombines the gists of his paragraphs and finds his work complete or otherwise. Even the genius who appears always to arrive without a preconceived aim does not resent it when he discovers that there is method in his madness, and that he is all the better for some of that same method. His literature all the way through will teach him that other people work in a similar way, and some occasional drill of this kind becomes quite interesting without the painful detachment so generally associated with the set and formal grammar lesson with the timesome grappling with, and dissection of, examples drawn from the examination papers of the last ten years in the appendix of his text-book. Not that it is not a good thing for the pupil to possess a text-book; he may indeed possess one with advantage.

After such personal acquaintance with his work as outlined above, there is no objection to the reading and talking over, in class, of a chapter of a text-book. Quite an interesting lesson can be had in this way, particularly "for a change." If he is fortunate enough to be learning Latin, the pupil soon finds out why our text-books are so often framed as they are, and if he does, then indeed they will serve a useful purpose.

It is generally the language masters who ask for formal and separate grammar lessons, but I think they ask too much. They often want, as most of us, somebody else to do a lot of their own grind, just as the ungenerous geography man often wishes the physics man so to arrange his lessons on "laws of pressure" that he may have a clear run with his effects of the winds upon climate. But English is not the lowly handmaiden of Latin and French. Very

little grammar work need be done with the youngsters in their literature lessons, though with the older pupils occasional drill in analysis and paraphrasing—written and oral—will often serve admirably to clear up difficulties and to strengthen the pupils' control over their work. They may, too, with advantage be encouraged to make their own collection of similes, metaphors, figures of rhetoric, obsolete words, &c.—a method of making their acquaintance far preferable to that of getting up chapters on the same in text-books as separate lessons in grammar.

In short, there are few trainings at school more valuable than that which a pupil gets in acquiring the ability to write a good essay, and in the course of that he may well obtain his knowledge of English grammar.

ALBERT E. ROBERTS, M.A.

Lecturer in English, L.C.C. Day Training College, Islington.

LITERATURE, composition, and grammar are branches of the English work which, though interconnected, are *distinct*. They should therefore be taught *mainly* as distinct subjects. Appreciation of literary masterpieces is not gained through the medium of grammar. Any merely technical work—and grammar is mainly so—that does not definitely help towards the appreciation of literature should be divorced entirely from the literature lesson. This does not mean that the "form" or language is not to be studied. As a fact, language work (not grammar) is very useful in helping children to appreciate literature. The question of time, degree, and place of such work every individual teacher has to answer for himself in his own classroom.

The language work in connection with the poetry lesson will in the main be concerned with (a) diction and (b) metre, *i.e.*, the children will be trained to appreciate beauty of language and rhythm. Thus, so far as the study of the language is concerned, questions will be concerned mainly with such things as figures of speech or the meaning and appropriateness of epithets. Beyond an occasional grammatical question to see whether the sense of the passage is grasped, grammar is entirely out of place; and, as a rule, questions on the content seldom, if ever, need an appeal to grammar. The metre as well as the diction will receive attention, and with a view to the better appreciation of rhythm, questions will be asked on such points as the number of stresses in the line, the rhymes, the accommodation of sound to sense. But this is not grammar. If any exercises are needed in analysis, passages are better chosen from poems that are not being studied.

So far as prose reading is concerned, the literature may and should form the groundwork for instruction in the principles of composition. An examination, for example, of one of Macaulay's essays may be useful in making the class realise the principles underlying paragraphing; but such work is best done exhaustively in a separate language lesson, some incidental reference being sufficient during the literature lesson. The unity of the sentence, the unity of

the paragraph, the loose and periodic sentence, order of words, such is the type of work set aside for the language lesson and based upon the literary masterpieces studied. If too much work of this description is done in the literature lesson, the results will be disastrous. There is a close connection between literature and composition: the two represent the impressional and the expressional phases of the English work. Such lessons as have been outlined are rhetoric rather than grammar. Grammar is a thing apart from literature.

At the age of twelve, when the child is doing either Latin or French, he will be already equipped with the ordinary grammatical rules, not the obsolete forms usually found in grammar and language books on the market. In his literature lesson his grammar will help him occasionally in the interpretation of difficult constructions, but the part grammar plays in the teaching of literature is almost negligible. It is far more closely connected with composition. The amount and kind should be entirely conditioned by the exigencies of the composition work (not the literature) and carried on in close connection with it. The science of grammar has an intimate connection with the art of composition, but we must remember that "all rules involved in grammar should be supplementary to practice." The separate and definite grammar lesson is necessary to systematise the irregular and incidental instruction given in connection with the correction of composition and by way of obviating the occasional tendency to spoil the literature work by grammatical details. Every boy should possess a sound knowledge of the fundamental principles in order that he may become a critic of the English he writes. He then has a criterion whereby to judge the correctness or incorrectness of speech.

To sum up, the study of grammar should be carried on, not in connection with literature, but in close connection with the composition work. Much of the ordinary formal grammar is valueless so far as composition is concerned, and in its place instruction in the principles of composition, in the main elements of applied grammar, and in language work of a rational type should be substituted.

W. W. SAWTELL, B.A.,

Headmaster, Uxbridge County School; Lecturer in English to Danish Secondary-school Teachers and Schools.

WHILE I do not profess to be dogmatic on this debatable question, my experience suggests that if language *per se* is to be thoroughly studied it must be treated separately from the literature of which it is the shell. However desirable it may be to acquire the grammatical framework inductively, most modern language teachers find that in practice, definite treatment of the grammatical structure is necessary. The Board of Education Circular, however, suggests that from the grammatical side the language should not be thoroughly studied. Much as one would desire to encourage study of the thoughts enshrined in our literature rather than of the vehicle by which they

are expressed, I think that the incidental teaching of English grammar would make it difficult for the teacher of foreign languages to obtain grammatical accuracy, and would deprive English of some of its value as a training in exact expression.

I know that much time can be wasted on English grammar, and it is most unpleasant to have the brightest gems of literature continually subjected to hard grammatical analysis—just as it would be to crush a precious stone in order to find its chemical constituents. But for those very reasons I consider it better to concentrate upon it in specific periods, and not to waste the time, or disturb the enjoyment, of the literature lesson (except for the occasional elucidation of a difficult passage) by the introduction of grammar. On the other hand, I think that composition and grammar might be more closely associated, with advantage to both.

The true solution of the problem is, I think, to reduce the amount of grammar as a boy or girl goes up the school, and, in the upper forms, only occasionally to set aside a lesson, or part of a lesson, for the formal study of it.

E. SHARWOOD SMITH, M.A.

Headmaster, the Grammar School, Newbury.

I DO not pretend in the least to be an expert on the subject of teaching English grammar. I never learnt it myself, and I have never ceased rejoicing thereat. To me formal grammar teaching from a formal teacher (and what else could he be?) is a nicely calculated method of killing originality, creative power, and all love of art and literature. To play a game of hide and seek with the nouns and adverbs in a passage of Shakespeare or a poem—say, from the Golden Treasury—may have merit as an amusing game, but it is often sheer murder all the same.

As for those devoted students who laboriously rule and measure off multitudinous spaces on paper and head them with horrible terms, such as "predicate," "extension," "attribute," and the rest of their jargon, and then fill them up with stray words and phrases—the mutilated limbs of some mighty author—why not give them a Chinese puzzle or a knot of string to unravel? They would be far more usefully employed. All such delights—if they are delights—are for those maturer minds—if they are maturer minds—that love analysis and decomposition and dissection. To me it is the holding of an inquest on dead literature—and what use is such a feast of the ghouls to the young? Their business is growth—growth in mind, body, and soul—not botanising on their mothers' graves. Let them write poems, not mutilate them.

After all, what is the object of teaching grammar? Is it to speak well, to write well, to appreciate literature, to have taste, judgment, thought, to live good lives, to be good citizens of the world? Will anyone assure me that any of these ends is gained by formal grammar teaching to the young? "But are they not to know grammar?" someone asks. They

do know it all the time. Let them act literature, read literature, sing literature, recite literature, and the grammar comes. What they do not know are the *formal terms*. All this formal grammar teaching is part of that gigantic conspiracy to cheat children into believing that learning is difficult, and thereby to exalt the authority of the teacher. It is pontifical—it is sacerdotal—it is "conjurer's magic." Like Monsieur Jourdain, children are amazed when they find they have been using "extensions" and paulo-post-futures and heaven knows what without knowing it.

There must, of course, be a few names, but let them be as few as possible, and let them be acquired in learning a foreign language—*gradually*. When I reflect that I used to put whole passages from Burke and Gibbon and Berkeley into French, Latin, and Greek prose without knowing in the least what a complex sentence (in the grammarian's meaning) was, I realise my intense ignorance, but I rejoice in it. When I remember steeping myself in the magic and the beauty of "The Lady of Shalott" at eight years of age without knowing which were the verbs, I thank heaven I was never taught formal grammar.

As for the whole jargon of the grammarians, I would have it prohibited by Act of Parliament. No wonder that with his formal grammar and his formal teachers the shades of the prison-house close grimmer and denser round the growing boy.

The fact is that, as M. Bergson has shown in his great work, directly one analyses and dissects a passage from a great writer, or indeed any piece of literature, one "spatialises" and therefore kills. It is to cut a section across life. It would not be criminal to do this with an excerpt from a daily newspaper, but it would be useless for the young. Their business should be synthesis. Indeed, the order in knowledge seems to me to be synthesis—analysis—and then a fuller synthesis. But the two latter processes for the normal person come after school-life. I am writing, of course, of literature only.

MISS M. D. TEALE,

Headmistress, Queen's College School, Harley Street, W.

I HAVE found after long experience in the teaching of English that the study of grammar may very easily become purely formal, and that it is most necessary that this study should be linked with that of composition and literature. In my own school the composition and grammar lessons are closely allied, and advantage is taken of the grammar lesson to accentuate points that may have arisen in the composition lesson.

I may mention that I have found the books of Mr. Lewis Marsh (Blackie) most helpful. In the series for young pupils the teaching of grammar and composition by means of exercises based on pictures is carried on simultaneously, and the more advanced books of the series are equally helpful in developing the principle that grammar can best be studied in connection with composition and literature.

HENRY V. WEISSE, B.A.,
Headmaster, Liverpool Institute.

I AM glad you are bringing into public notice the question of grammar teaching, and the delightfully naïve Board of Education Circular about English teaching.

As a matter of fact, most of the schools from which we poor secondary-school masters have to draw our pupils seem to confine themselves to reiterating the statement that "I done it" is wrong and "I did it" is right; that "She dances a treat" is a vulgarism for "She dances delightfully," &c., &c. Set grammar lessons not only are avoided, they are discouraged by the modern method of peptonised spoon-feeding. The children "pick up their grammar in the course of composition, reading, and literature lessons." I asked a *clever* boy of twelve, fresh from a primary school as a "free place" candidate, why "dogs fight" makes complete sense and "dogs like" does not. His cryptic answer was: "Because like is part of the verb 'to be,' sir."

We had to teach that boy French, by preference on "modern methods." The result might be that he knew a little French for practical purposes: it certainly would not be that his mind had gained strength, precision of thought, and certainty of expression in any language. In order to give such a boy any sort of chance of developing properly, we have to pile on set grammar lessons in English—to make sure that the boy knows ordinary accidentence, such as it is, and elementary syntax.

I begin to suspect that the real reason for the distaste for learning and teaching grammar is not based on any educational theory—that the Board of Education has succumbed to the plausible misrepresentations of a deplorably large section of the teaching body. The teachers themselves, in all ranks of humility and exaltation, have been either too lazy or too conceited to come to terms as to a reasonable scheme of English grammar teaching. They have found it very difficult to prepare children for extraneous examinations in English grammar, because faddism prevails and there is no agreement as to forms and terms. The simplest way of avoiding trouble was to preach the gospel of "emancipation from pedantic forms and an incomprehensible jargon of terminology." As a matter of fact, the less simple way, the hard way, and, I firmly believe, the way that leads to educational success, is to endow forms with a living interest and to worry out with one's pupils the meaning, and hence the force, of the incomprehensible. A grammar lesson can be made as interesting as, and more profitable than, any other.

Woodwork Exercises treated Mathematically. By F. E. Drury. 215 pp. Illustrated. (Bell.) 2s. 6d. —The aim of this book is to show how practical mathematics may be linked up with woodwork in the form of mensuration, &c. The scheme of work is eminently sound, and has been in use for three years, with excellent results, in the author's school at Halifax. With reasonable correlation of class work, this course should be found suitable for every kind of school.

THE ASSOCIATION OF HEAD-MISTRESSES.

THE annual conference of the Association of Head-mistresses was held at St. Paul's Girls' School, London, on June 14th and 15th. The president, Miss Douglas, was in the chair.

In her address the president dealt with the training of teachers. During the course of her remarks she said, up to the age of fifteen or thereabouts the child has to be trained, not for any particular profession, but in such a way as to make her ready to step forward along any path that she may have afterwards to tread. We must bear in mind that she may become a wife and a mother, and many of precisely the same qualities are wanted for a teacher as for a mother. Those who sometimes write, quite unjustifiably, against spinsters' educating girls so that they are unfit to be other than spinsters themselves surely do not realise the existence of thousands of good wives and mothers in happy homes who will tell them that they owe much of the very best help they have in ordering their married lives to the education and the training they received in their schooldays. On the other hand, mistakes have probably been made by teachers which have given rise to the temptation to write in the thoughtless and heartless way in which critics of girls' schools do sometimes write, and in this matter of training the future teachers of girls we shall do well to realise that the most important side to a teacher's character is the purely human side, or what may be called the motherly side, so that all that tends to foster qualities of mind and heart that will in the future make the best mother are also to be welcomed for those who eventually will become teachers. As the future mother needs to have her mind well stored and her judgment trained, as well as to be capable with her hands and well acquainted with the principles of good home-making, so the future teacher needs to be trained in home and social duties as well as in purely intellectual studies.

The chief discussions on the first day centred round the work of the Overseas Sub-Committee and of the Sub-Committee to inquire into Openings for Girls and Women. It was resolved unanimously: "That in the opinion of this Association every effort should be made by the individual members of the Association to take mistresses on their staffs who have had experience overseas."

Miss Oldham presented the report dealing with openings for girls, and pointed out that in businesses run by educated gentlewomen the tendency was for the hours to be shorter than in others, and they might hope that when more businesses were run by educated women this tendency might be further developed.

In connection with the report of the representatives on the Federal Council of Secondary School Associations, the following resolutions were adopted: (i) That this Association regards with great satisfaction the pledge given by the Chancellor of the Exchequer to finance an approved scheme of pensions (retiring allowances) for secondary-school teachers in State-aided schools.

(ii) That this Association (a) welcomes such a provision as a public recognition by the State of its duty to increase the efficiency of secondary education; and (b) hopes that such scheme may at no distant date be so extended as to include teachers in all secondary schools.

Regarding the Consultative Committee's report on examinations in secondary schools, it was resolved, with the significant omission of the words: "for nothing can supply their place": "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 (for nothing can supply their place)—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.'"

The second morning was devoted to the consideration of the training of teachers and the Teachers' Register. It was agreed: "That this conference reaffirms the opinion expressed at previous conferences, that in the interests of the teaching profession and as tending to the efficiency of school work, it is desirable that teachers should take a course of professional training after their academic course.

"The conference, while expressing its appreciation of the value of the work of pioneers in the past, and of the training of many kinds now being given, recognises that no one type or method of training is suitable for all teachers alike. It therefore welcomes further variations and developments to meet the new needs of the new conditions of secondary education."

In connection with the Teachers' Register it was eventually resolved: (i) That the standard of attainment required be (1) for teachers engaged in secondary education of literary or scientific type, that of a university degree or its equivalent; (2) for each other section of the teaching profession the appropriate qualifications most nearly corresponding to this in the judgment of the Registration Council. Specialists for teaching in the junior classes of secondary schools, or in preparatory schools, should be dealt with in one of these sections.

(ii) That training of some kind be required, its character, duration, and conditions to be approved either by the Registration Council itself, or otherwise as it may determine.

(iii) That sufficient educational experience be required, its character and duration to be decided by the Registration Council.

(iv) That this Association is in favour of a provision by which, with or without further conditions as the Registration Council may see fit, admission to the Register should, during a period of three or two years, be granted to all teachers who have served for not less than five years in schools on the List of Schools recognised by the Board of Education; that steps should be taken to make this list complete as soon as possible; and also that some similar procedure

should, if possible, be adopted with respect to private schools of approved efficiency.

A discussion also took place on mixed secondary schools under a headmaster, and it was agreed: "That this conference views with anxiety the increase of mixed secondary schools under the management of a headmaster with a mistress as assistant. In country places where separate schools for boys and girls are impossible for financial reasons, the conference is strongly of opinion that it is of great importance that the chief assistant-mistress should have a more clearly defined status than at present."

A resolution was adopted deprecating the tendency to curtail or interrupt the general English education of a girl before the age of eighteen, in order to send her abroad to acquire a conversational knowledge of modern languages, as being injurious to her character and mental development.

MODERN LANGUAGE TEACHING.

EVERYONE interested in the teaching of modern languages will welcome the recent Board of Education Circular, and its moderate and common-sense tone will appeal to most teachers in spite of the evident effort to please all concerned. Some sections may be entitled, "A mild plea for the study of German in our secondary schools." No undue enthusiasm is displayed, but the Board thinks that a revival and expansion of the study of German wherever possible might with advantage be tried. At last it is alive to the fact that German is fast disappearing as a school subject, and "much regrets this tendency." Yet the previous attitude of the Board was partly responsible; the Circular tacitly admits this by trying to explain away the regulations about the teaching of two foreign languages. Now, however, schools may choose French and German and still be recognised, and the Circular even points out the well-known reasons why German should have a prominent place in the education of an English boy.

But how is German to be introduced into the timetable? It must come in as an alternative. The Circular is not very clear on this point, but three cases may be noted: (1) Where the school-life is so short that only one foreign language is taken, this will in most cases be French, but the Board suggests that there must be districts where German would be more useful, or, if the organisation permits, a possible alternative. (2) Where two foreign languages are taken, the question resolves itself into the rival claims of German and Latin. At what stage should German be taken up? It is not much use beginning German in Form V., as is done in two of the model schools given in the appendix to the Circular. (3) The Circular admits that even on the modern side of highly organised schools German is not given a real chance. Yet, if the aim of such an education is either a first-rate literary or advanced mathematical and scientific training, surely German is indispensable.

The largest part of the Circular deals with the methods of teaching, and here it would seem that the Board will tolerate every conceivable method, while giving its official sanction to the direct method clipped

of the excesses to which extreme reformers have gone. "The rational study of a modern language must be based on the spoken idiom," but "facility in the comprehension and use of the foreign speech," though the "immediate aim, is not the sole aim of modern language teaching." As the boys travel up the school good literature ought more and more to form the core of the class work; there should be a wide choice of books of first-rate importance for "out-of-school" reading, so that the pupils get "a liberal education based on the literature, history, and thought of modern and mediæval Europe."

On all points connected with the difficulties of modern language work the Circular will prove useful; especially is this true of the use of phonetics, the necessity or otherwise of formal grammar, the use and abuse of translation from and into the foreign language, and the place of free composition and prose composition in the scheme of work. Without belittling the importance of good pronunciation and the proper means of acquiring it, while giving due prominence to conversational facility, the Circular also directs attention to the fact that "in many schools where the acquisition of conversational powers has been wrongly conceived to be the principal aim of teaching, there is not only a tendency to be too ready to condone grammatical inaccuracy in speech and the grossly careless performance of written exercises, but also a more or less complete neglect of the literary aspect of modern language work."

IRISH EDUCATION UNDER HOME RULE.

THE Technical Congress held in June at Cork was made the occasion by Dr. Starkie, who is the head of both primary and intermediate education in Ireland (the two offices being, however, quite distinct), for a pronouncement of the utmost importance as to the prospect of education under the Home Rule Bill. Dr. Starkie is well known for his fearlessness in expressing his views. Politics apart, he declares that under the Bill as it stands education in Ireland is bound to suffer. Having starved Irish education for many years, the Treasury, which has admitted Irish claims to more money for education, now proposes to stereotype the amount to be paid over to Ireland under the head of education at its present figure in the bulk sum to be handed over to the proposed Irish Government to pay for Irish Services. Mr. Birrell has admitted that the financial arrangement will be a tight fit, but Mr. Samuels talks of economies of £1,000,000 being easily realised. Dr. Starkie is sceptical of any economies except perhaps in the law department, but with a full sense of responsibility denies the possibility in Irish educational administration. They could only be effected by reducing the number or the salaries of the primary-school teachers. At the present time these salaries tend to increase automatically every year by £15,000. The Bill makes no provision for this.

Taking the educational requirements admitted by the Conservative handbook, Dr. Starkie enumerated the present and immediate needs of Irish education.

Those of secondary education are based upon Mr. Birrell's statement in the House of Commons on May 23rd of last year. He then stated that he was anxious to introduce a system of scholarships to enable pupils to pass from the primary to the secondary schools, and ultimately to the universities. A scheme was drawn up costing about £10,000 annually. The Treasury refused to sanction it. In the same debate, Mr. Birrell agreed that Ireland should receive a sum proportional to the £750,000 per annum which is paid every year from Imperial funds in capitation fees to secondary schools in England, Scotland, and Wales, the money to be applied to improving the position of assistant-masters. Nothing more has been heard of this. In fact, by the action of the Finance Bill of 1909 intermediate education has actually suffered a loss of £8,727 per annum. The Conservative handbook admits that Ireland should receive for the improvement of assistant-teachers £220,000 a year.

The requirements of primary education Dr. Starkie enumerated under seven heads: (1) Building grants to rebuild some hundreds of schools which are a disgrace to civilisation and a positive danger to the health of the nation, £100,000 a year for five or six years; (2) bonuses for teachers in large and important schools, £11,000 per annum; (3) readjustment of numbers of teachers in the higher grades, immediate cost, £1,000, rising ultimately to £18,000 per annum; (4) monthly payment of salaries, immediate cost (non-recurring), £280,000, involving in increased cost of administration £5,000 a year; (5) provision for practical instruction, £4,000 a year; (6) medical inspection. In England the Exchequer will give for this purpose £250,000 a year. Ireland should receive as her proportion £25,000. She is offered £7,500 on conditions impossible of fulfilment. (7) Continuation schools costing £4,000 or £5,000 a year, and ultimately rising to £25,000.

These claims, which are all admitted, amount to nearly £400,000 a year, the most urgent, namely, the needs of assistant-masters in secondary schools, alone amounting to £220,000. "Helped we must be," says Dr. Starkie, "unless we are satisfied to sink to the condition of a province of the Ottoman Empire. . . . My last word is that if the present education grants are stereotyped at their present figure, the path of progress will be effectually blocked for a generation."

This general statement on the position of education was made by Dr. Starkie after an important paper on "Continuation Schools." Such schools were established in large numbers in Scotland, and were recognised throughout Europe as essential to present-day education. They should not be intermediate schools, which were intended to lead on to the university, but should aim at continuing beyond the elementary stage, and in a practical direction in the case of the cleverest children of the working classes. Such schools would have two aims, first to continue and complete the subjects learnt in the elementary schools, and, secondly, to communicate such branches of knowledge—literary, scientific, and general—as bore directly on the various occupations in life, in some of which the pupils would be afterwards engaged,

and furthermore, such hand and eye training and workshop practice as would engender habits of industry, increase dexterity, and develop taste. At present, in the absence of such schools, many pupils pass on into intermediate schools, where they receive an education which is entirely unsuited to what they require.

HISTORY AND CURRENT EVENTS.

MANY must have been struck with the contrast between the circumstances of the death of King Frederick of Denmark and those of his funeral. The body, which was at first treated, to believe some accounts of the matter, with such scant courtesy by the Hamburg police, as that of an "unknown," and rescued from further public exposure only by a breach of regulations by a friendly physician, has been laid to rest in the ancient burial place of the Kings of Denmark with all the pomp of State amid the tears of an affectionate family. Kings have died obscure deaths before now, and their remains treated with ignominy (we may recall, for example, William II. and Richard II. of England), but the occurrence of last May surely has never found a parallel. The funeral, on the other hand, is only one of many instances; it has brought together as a family those who are officially estranged. The present rulers of the three Scandinavian kingdoms have met and exchanged greetings. Some have ventured to hope that this may be the beginning of a common understanding between the nations, now so sorely estranged, and that under the pressure of what is a real fear, though perhaps without full justification, the Union of Calmar may be renewed after centuries of separation.

No! They are not electing the President in the United States of America, although to judge from the prominence of the names of Taft and Roosevelt in the news from that country for the past few months, and the absence of other names of candidates, the average British reader would imagine that nothing less could be occupying the attention of our American cousins. The contest is confined to the ranks of one political party, and they are merely deciding which of these two men shall be the party candidate at the presidential election next autumn. How the "fathers" of the Constitution would be shocked and alarmed at this "strange" proceeding! Read the Constitution itself and the arguments of 1783-89, and see what a world of difference there is between the "thirteen States" of that day and the ocean-to-ocean republic of to-day. The growth in mere size has had much to do with the development. A written Constitution is no guarantee against complete change, even though fortified with requirements of two-thirds majorities.

WHILE our readers are glancing over these lines Stockholm will probably be much in their thoughts. Will any of them think also of Hellas? Rome has been called *the Eternal City*, and it is strange as well as instructive to trace in many of our daily actions the influence of the seven-hilled ruler of the

world, but Athens, too, has a claim to our loyalty. What do we not owe to her and other Hellenes in art, in drama, and in philosophy? And nowadays she is teaching us what barbarous Europe so long neglected (why?)—the cultivation of the human body. Are not these games called Olympic? Is there not a Marathon race? Even Scandinavia—Ultima Thule—is learning from the older civilisation, and this summer is devoting her energies to show that "the frozen north" can learn from the sunny hills and valleys of the south. Though Sweden is a large country, its people are not numerous, and the Government is therefore more in touch with even the sports of the people than is the case with more thickly populated countries. We are therefore not surprised to find that the Post Office at Stockholm is taking advantage of its right to obliterate stamps on letters, and effecting this with the words—in Swedish and English—"Olympic Games of Stockholm, June-July, 1912."

HAVE any of our readers ever endeavoured to understand the tenth chapter of Genesis? Or have they been content to treat it as they treat the first nine chapters of the Book of Chronicles, as a mere list of unmeaning names? Yet both these sections of the Hebrew Scriptures have secrets to yield under patient examination, which, to the serious student of history, have their value. For the present we leave the "Chronicles" genealogies to the reader himself, especially as a large part of them is a mere copy or digest of earlier parts of the Old Testament. But we would direct attention to the tenth chapter of Genesis as a careful, even if unscientific, account of "the world as known to" the author, who lived probably about the year 400 B.C. His range is from the Euphrates or somewhat farther eastward to Italy and Sicily westward, with a dim knowledge of parts beyond. The Black Sea northward and upper Egypt southward are his limits in those directions. Among the "islands and coastlands" which he knows is Rhodes, disguised in our English versions under the word "Dodanim." (Hebrew R and D are much alike and often confused.) How old therefore is the name of this island! An island the capture of which the other day by Christians from Mohammedans reminds us once again of the age-long contest between Europe and Asia, and the religious strife which has been superadded to that of race.

ITEMS OF INTEREST.

GENERAL.

THE King and Queen visited Harrow on the occasion of the Speech Day on June 15th. The "speeches" and prize-giving filled up the morning, and the afternoon was devoted to the welcome to the King and Queen. During the course of his reply to an address of welcome the King said: "I know well the distinguished part played by Harrovians in all parts of civic and national life. Byron, Palmerston, Peel, and Dalhousie are but a few of the famous names written in the annals of your school. I am certain that in the future, as in the past, men who owe to Harrow their early training will not be 'the last nor the faintest' in the great work of governing and defending the

Empire. This generous tradition lays on you and your successors the high duty of fitting yourselves to follow in their steps. By turning to good account not only your studies and discipline but also the liberty you so largely enjoy, you are preparing yourselves to do good and strenuous service to your King and country, be it 'twenty or thirty or forty years on.'"

In submitting the Education Estimates on June 6th in the House of Commons, Mr. Pease, the President of the Board of Education, spoke in an optimistic note in referring to the progress made during the past year in secondary education in this country. The Act of 1902, he said, certainly left a gap between the elementary school and the secondary school, but that gap is being filled up gradually by the higher elementary schools that have been established, by the central schools, and the higher classes in elementary schools which help to co-ordinate and systematise the educational system. One of the first objects of the Board, he continued, is to widen the character of the education in secondary schools, and to give it an increased commercial, industrial, or agricultural bias, according to the needs of various localities. Another object is to try to extend the number of years of school life. The Board is also promoting the teaching of modern languages. It is interchanging with France and Prussia a certain number of student teachers so that the benefit of the teachers from those countries is secured, while some of our teachers go over to Germany and France and acquire better linguistic knowledge by teaching in those countries. A consultative committee, over which Mr. Acland presides, reported, our readers will remember, during the year with regard to the examinations in secondary schools. Mr. Pease said the Board is in substantial agreement with most of the principles that committee has laid down, and he hopes to invite the leading English universities to confer with the Board of Education with the view of meeting some of the most practical suggestions. The financial aspects of the proposals are of a difficult nature, but unfortunately the committee does not see its way to deal very fully with the problem. The committee is now engaged in doing what it can to help the Board by taking evidence with the view of reporting the best means of promoting practical work, and has been asked to report how it should be encouraged and developed in secondary schools.

THE sixth annual conference of the Association of Teachers in Technical Institutions was held in London on May 27th and 28th, Dr. James Clark, rector of Kilmarnock Academy and Technical School, presiding. In his presidential address, Dr. Clark reviewed the year's work in technical education and referred with approval to several recent arrangements of the Board of Education as likely to remove unreasonable restrictions on the work of the technical teacher and to encourage freedom in the work of technical institutions in different parts of the country. In a statesmanlike review of the causes of Germany's prosperity in recent years, Dr. Clark said it is probably impossible to enumerate all the factors in the development of Germany's world-power. Education undoubtedly forms the basis of her commercial greatness, and the

people themselves supply convincing proof of their profound belief in its supreme importance. Technical education is now part of the national life. For forty years and more it has been put to the proof, and no one protests against the burden of its ever-increasing cost save a few of the old philosophic school, who think that Germany's internal and spiritual loss was greater than her external gain when she deliberately and completely sacrificed her old ideals for the sake of material progress. In the United Kingdom we have still to create in the great majority of the people a genuine belief in the value and possibilities of technical education. Much of the technical instruction throughout the country is excellent, and the average quality steadily improves from year to year, but up to the present only a small fraction of our industrial and commercial armies are affected thereby. We are still a very long way from the all-pervading enthusiasm so characteristic, for example, of Saxony with its systematic, well-equipped technical school to every 13,000 of population; and yet in proportion as the great masses of our artisan population remain ignorant of the methods and application of science, so will our trade and prosperity continue to be threatened. One marked result of this lack of technical education among British operatives is the waste of time, of effort, and of material, that only a scientific training can avoid.

THE kinematograph demonstration promoted by the proprietors of *The Bioscope*, and held on June 15th, at Cinema House, Oxford Street, London, served admirably to show the educational value of the moving picture. As Dr. Heydemann said in his introductory address, the method is of special value in teaching geography, and it would be difficult to imagine a more graphic way of impressing upon children the romance of lumbering and the weird charm of Indian jungle scenery and life than by the Kineto and Essanay films exhibited. The Pathé and Cherry Kearton films depicting bird-life and the hunting of big game would delight any schoolboy and convince him of the beauty and wonder of all forms of nature-study. But the question of expense will make it impossible to introduce the kinematograph into many schools, and thus bring into the classroom an exact copy of the natural panorama. We believe, however, that it would prove remunerative to the enterprising manager of a moving-picture theatre who arranged, with the help of a practical schoolmaster, a series of Saturday morning demonstrations designed to illustrate the chief geographical subjects included in the secondary-school curriculum.

HUMAN endeavour is shaped by human environment. Hence it is imperative that in all teaching of matters relative to the Holy Land a great effort should be made to realise the "atmosphere" of the country. The many people who were able to inspect the photographs of the Holy Land taken by Miss Sophie Nicholls, and exhibited at the North London Collegiate School on June 14th and 15th, saw an excellent and valuable means of emphasising the background of the Scripture story, the thoroughly good work of an expert in both geography and photography. A

set of ten photographs is to be published for the use of colleges and schools. All communications should be addressed to Miss Nicholls, c/o Messrs. Sinclair, 54, Haymarket, London.

THE interesting papers discussed in the Education Section of the National Conference on the Prevention of Destitution, held June 11th to 14th, constitute one among many signs that the social aspects of education are at last in a fair way to receive the attention they deserve. About one-half of the papers are devoted to the subject of reforming the elementary-school curriculum, and here the burden of nearly every contributor's message is substantially the same. "We have," says Mr. Embleton, "killed the children's desire to make things with their hands. They leave school having no idea for what form of occupation they are adapted other than clerical pursuits." Mr. Arrowsmith, another progressive schoolmaster, pleads that manual occupations should be the very basis of school work, and not a mere disciplinary exercise or superficial flourish. Prof. Gregory, whilst recognising cordially and hopefully the good work that has been done on the basis of the "three R's," and whilst warning us against expecting too much of the schools, insists that training in manual dexterity would probably increase the dignity of manual labour, and lead ambition into industrial rather than clerical directions. In a similar spirit, Prof. Findlay declares that the public (and through it the teacher) needs to be converted to "a new conception of the worth of manual toil, of the divine dignity of humble service."

TURNING to the papers which deal with the medical and administrative sides of the subject, we find Prof. Bostock Hill arguing forcibly that medical inspection of school children can lead to no practical result, unless suitable measures are taken to remedy the defects discovered, and he shows by the example of Warwickshire what can be done in this direction in a county area, without much new expenditure. Sir Wm. Chance's contention that medical treatment should be left to the ordinary agencies, the poor law and charity, will probably not meet with so much sympathy. Miss S. Lawrence enters a timely protest against "the unnecessary multiplication of officials," and makes suggestions for simplification and economy. Advisory committees, continuation classes, and adolescent labour are the subjects of other papers, Mr. Tawney's remarks on the last being admirably terse and clear. "Miss Harriet Finlay-Johnson" (Mrs. Weller) rightly pleads for home-like schools, though, after abundant opportunities for observation, we do not recognise her picture of the elementary schoolmistress as a "flighty young 'Miss' who has spent all her leisure in cycling and sport, and who craves every spare moment for bridge and dances . . . who has been clever enough to dash through a certain number of exams., and who has a superb contempt for her headmistress as a 'frump,' and is frankly bored to death by those 'horrid kiddies.'" Excellent work, if report speaks truly, was undoubtedly done by the writer at Sompting; but Sompting evidently did not furnish an extensive field for observation of her fellow-teachers.

THE Association of Teachers of Domestic Subjects, now numbering 1,200 members, held its annual conference on June 1st, under the presidency of the Duchess of Sutherland, at Battersea Polytechnic. The Duchess made an amusing speech. She advocated the taking of more hours from the school curriculum and spending the time on domestic science. She characterised modern education as giving a chance only to the few. Were she a man, she would not marry a woman who had no knowledge of domestic science. Boys should be trained to cook as well as girls. When camping out in western Canada, her knowledge of practical cookery gave her the pleasant position of top-dog. Able addresses followed by Dr. de Moulpied and Mr. J. Wilson on the relationship between a knowledge of natural science and practical cookery. Mrs. Pember Reeves stirred the whole audience by her address on "Housekeeping on £1 a Week," showing how terrible is the factor of a weekly rental of 7s. 6d. or 8s. 6d. in a budget so meagre, a factor that means the underfeeding of the wife and children, even when a man has regular work. Miss Swanson, in an address on educational needlecraft, emphasised the value of training for hand and eye, the necessity of construction and decoration running hand in hand, the folly of devoting the art period of childhood to mere stitchery, unsuited in any case to fingers apt to be feckless.

SCOUTING has many appeals to make to the schoolmaster. It has a moral side, which will be at once appreciated by a study of the scout law. It has an educational side, as it offers rewards and promotions for nature-study, knowledge of the home district, surveying, electricity, and so on. It has a physically educational side in its attention to swimming, drill, and similar activities. It requires also some knowledge of first aid, signalling, cooking, and map-reading. Then it has a purely recreative side in its own special games which can be played by a hundred boys a-side as easily as by the conventional eleven. Probably more men would take up the work in connection with their schools if they knew more about it. The council of the Boy Scouts' Association has therefore arranged a camp at which schoolmasters may have an opportunity of studying the movement from an educational point of view. The camp will be held in Cheshire during the last fortnight in August. Prof. Findlay has arranged the syllabus of the course. The inclusive fee will be fifteen shillings a week, and all applications to attend should be forwarded, as soon as possible, to the secretary, the Boy Scouts' Association, 116 Victoria Street, Westminster, S.W.

SOME idea of the possibilities of the scout movement so far as a certain type of boy is concerned are set forth in a recent report made by the headmaster of the Blackley Municipal School, Manchester. He has been conducting a series of evening classes for the following badges: ambulance, pathfinder, carpenter, handyman, leather-worker, swimming and life-saving, and clerk. Some classes are free; for others the charge is one shilling per session to nothing at all. In planning the

course the boy's natural impulse to do things has been fully attended to, and the scout law has been used successfully as the basis of appeals as to regularity of attendance and questions of discipline. A wide circulation of this report would do much to disperse the idea that scouting means playing about with a broom-handle. There are many points about the movement that should interest teachers, and probably no better method of getting in touch with the serious import of the ideas of the founders could have been designed than this one of a camp where men may study the whole question and prepare themselves to take up the work.

THE momentous revolutions in the conduct of the Art examinations of the Board of Education, foreshadowed in Circular 786 some six months ago, have materialised in the recently issued Circular 798. The old arrangement of "groups," with their minute subdivisions of subjects, has disappeared, and in their place we find the various branches of study arranged for examination purposes in groups of closely related subjects under five heads: Drawing (antique, life, memory, anatomy, perspective, and architecture); Painting (life, still-life, figure composition, and history of painting); Modelling (life, hand and wrist, ornament, figure composition, design and history of sculpture); Pictorial Design (design, figure composition, design for specified processes, and history of engraving); Industrial Design (drawing and modelling historic ornament, original design for specified craft, and history and styles of ornament). The rearrangement of the groups offers facilities for specialisation which were impossible under the old conditions. A candidate electing to be examined under one of the five heads must undertake all the examination tests under that head in the same year, but marked success in one test may be allowed to compensate for comparative want of success in another. In the new regulations, in addition to taking the prescribed tests, a candidate may be required to submit note and sketch books as evidence of study. Great importance will be attached to the written work, as evidence of reading in relation to the subject, and of some power on the part of the student to express himself in writing, and it is evident that the authorities are earnestly endeavouring to combine craftsmanship with culture. The new syllabus, which will come into force in 1913, is characterised by a broad treatment in the classification of subjects and by the latitude allowed to students. Combined with the modification of the National Competition, it marks an epoch in the history of art education.

THE Local Examinations and Lectures Syndicate of the University of Cambridge has issued a notice of the establishment of a certificate, designed for teachers, in each of the following subjects: religious knowledge, French, German, and English. The certificate in English is intended for foreign students, but is not limited to them. The examination is to be held in connection with the June Higher Local Examination of 1913 and following years. The complete regulations may be obtained from the general secretary.

THE complete regulations for the Cambridge Local Examinations circulated last month indicate several interesting changes, among which teachers should note the following: The date for returning forms of entry and the rule as to fees for late entry in October have been altered. Fresh syllabuses are issued for geography in the Junior and Senior Examinations. The syllabuses for geography in the Preliminary Examination, design in the Junior, religious knowledge and perspective drawing in the Senior, have been altered. The regulations relating to the use of German characters in the examinations also have been modified.

WE offer a hearty welcome to *The Journal of English Studies* (Horace Marshall, 1s. net). In this, as in all else, English is the Cinderella of our schools, that it is the last subject to find a periodical devoted to its interests. We are therefore all the more gratified to see that the new venture is likely to be conducted upon sound lines. A *causerie* by Mr. Thomas Secombe will doubtless appeal to many readers, who might be scared away by the pedagogic articles. That Mr. J. M. Robertson and Mr. William Archer contribute papers is proof enough of the high standard set by the editor. If we think that the purely professional articles are on a lower plane, it is probably because we have just been reading through some recent numbers of *The English Journal*, published in Chicago. It is interesting to notice that the American journal confines itself to matters more or less directly concerned with teaching, while the English periodical opens its pages to a wider circle of contributors. We believe that both enterprises will flourish, and we could hope that each will borrow somewhat from the ideals of the other.

TEACHERS are specially catered for in two articles in the April issue of *Science Progress*. Mr. A. Vassall, senior science master at Harrow, discusses under the heading "Science and the Average Boy" the teaching of science at public schools, which is admittedly now at a transitional stage. In the last few years the larger public schools have spent more than £200,000 in building and equipping laboratories. The writer briefly outlines a scheme which has given the most satisfactory results in stimulating interest and developing the habit of the independent acquisition of knowledge. The second article, by Mr. C. E. Ashford, the headmaster of the Royal Naval College, Dartmouth, entitled "Overdue Reforms in the Teaching of Electricity," is of a more specialised character, but it will be read with interest by physics teachers. Space is found for a contribution from Prof. J. L. Myres on the perennial subject of Oxford and Greek. The other articles will all be found of interest.

SCOTTISH.

THE Secondary Education Association, in conjunction with a number of organisations interested in various departments of work in secondary schools, held a successful congress last month in Edinburgh University. Dr. John G. Kerr, Allan Glen's School, was in the chair. Principal Sir William Turner, in welcoming the congress to the University, described the gather-

ing as a senate built up of experts in different branches of knowledge, meeting together for the common good of all. In the forenoon congress met as a united body, while in the afternoon it split up into its constituent elements, and each section discussed questions of interest to its special members. At the forenoon sederunt, the Lord Advocate was the principal speaker. He disclaimed at the outset any desire to be regarded as an expert on education, but he had a strong belief in the value of all educational efforts, and did not share the pessimistic views that were common in many quarters as to the products of our educational system. He protested against the charge that was often brought against their schools, viz., that they did not prepare pupils for the business of life. The qualities that made for success in life were mainly sound judgment, tact, enterprise, industry, and courage. But he knew of no teaching and no training in the class-rooms which could instil these qualities in pupils who did not already possess them, and he knew of no examination which could test their presence or their absence. Their education should be directed, not so much to the building up of knowledge, as to the creation in their pupils of the inquiring mind, the observing spirit, the methodical habit, and the thirst for knowledge, which required no artificial whetting.

At the spring meeting of the Classical Association in the United College, St. Andrews, the president, Dr. Heard, Fettes College, referred to the correspondence about classics and the average boy which had appeared in *The Times*. In his view the chief characteristic of the average boy was the lack of intellectuality, and it was seriously contended that they should teach down to his level by lowering the standard and by excluding all but the soft options. This meant the glorification of a dead-level of mediocrity. The present educational system allowed no scope for individuality. The "average boy" was its fetish, and as the "average boy" did not like Latin and Greek, these subjects must be sacrificed to him. At the same meeting Mr. J. W. Critchley, Dumfries Academy, submitted a report prepared by Prof. Harrower and himself on Greek areas in Scotland. While there were eighty-seven schools throughout the country where Greek was still taught, there were wide districts unrepresented by a single school. Taking the figures for the past five years, there was a decrease of more than 30 per cent. in the numbers presented in Greek at the leaving certificate examinations. It was resolved to ask that Greek should be given as an option to science and drawing in the third year of the Intermediate course.

At a meeting of the council of the Educational Institute attention was directed to the proposed change in the method of conducting the qualifying examination. This examination, which is the passport into secondary schools, has hitherto been conducted on informal lines, and the verdict of the teachers concerned has been the main element in assessing the results. In future, it is proposed to conduct the examination on the lines of the leaving certificate examinations. Supervising officers, sealed papers, scheduled time-table, and elaborate rules are

now to play an important part in the examination of pupils from eleven to thirteen years of age. Such a procedure is altogether opposed to the whole trend of the Departmental policy for the past decade, and to the most generally accepted of educational principles, which veto formal external examinations at such an early age. It is generally believed that the proposal is purely an experimental one, undertaken at the suggestion of some of the inspectors. But meanwhile it places the Education Department, which has been the pioneer in so many admirable reforms, in the position of supporting a thoroughly retrograde and discredited policy.

At a meeting in Edinburgh University an association of teachers of geography was formed to discuss problems that arise in connection with their subject, and more especially to promote the teaching of geography on modern lines. Mr. George G. Chisholm, Edinburgh University, who presided, said that they were fortunate in having the support of the Royal Scottish Geographical Society, which was keenly interested in furthering sound geographical teaching in schools. The increase in educational associations goes on at an appalling rate, and the prospect of their fusion into one strong united association dealing with all branches of secondary-school work seems more distant than ever. Geography teachers have waited long in the hope that such a central body would be formed, but, owing to what they consider the step-motherly action of the Department towards their subject, they have felt compelled to take this "divisive course."

IRISH.

THE Irish Association of Secondary Teachers has published the following resolution, which has been passed and sent to the Government: "We beg to remind the Chief Secretary of the promise made by him last May, on behalf of the Chancellor of the Exchequer, that a substantial sum would be set aside for the improvement of Irish intermediate education; we also desire to remind him that the teachers were led to hope that effect would be given to this promise for the financial year 1911-12, and that in this hope they have been disappointed, and we now most earnestly appeal to the right honourable gentleman to have the promised sum set aside for the present financial year, attaching to the grant such conditions as will ensure the pecuniary advantage, efficiency, and reasonable security of the teachers." Comment on this resolution is superfluous. There is everywhere a feeling of profound disappointment that, after the definite and precise statement of Mr. Birrell in the House of Commons last May, absolutely nothing has been done. The question is whether the Government now intends to do nothing and to let Irish education take its chance with the Home Rule Bill. If so, why did Mr. Birrell raise expectations?

MR. T. O'DONNELL, M.P. for W. Kerry, proposes to introduce into Parliament a Bill to amend the law relating to secondary education, entitled Intermediate Education (Ireland) Act. It provides that it shall not be obligatory upon the Intermediate Education Board

to hold any public examinations, and the Board may, if it think fit, provide for the payment of managers of schools dependent on the results of inspections or on the number of students who have entered from elementary schools by means of free places. No school will be eligible for a grant which does not give at least 10 per cent. free places. A register of teachers will be kept of those who satisfy the Board's conditions. The Board will be assisted by a council of teachers representative of the profession, which will make regulations as to the qualifications, training, and minimum salary of teachers. Fees will only be paid to schools employing a registered teacher for each twenty pupils in average attendance. In the case of schools in rural districts the Board, in co-operation with the Department of Agriculture, may make special grants to encourage proper training in the science and practice of agriculture, and county councils will have power to aid secondary education out of a rate not to exceed 3d. in the £. The ages of students to qualify for fees must be twelve to seventeen, and exhibitions will only be given in the final year's course to those who have shown special merit and who will use the exhibitions to carry them to university or higher technical schools. Certificates will be given to students satisfactorily passing the recognised leaving examination, entitling them, without further examination, to enter Irish universities for the professions of law, medicine, or agriculture, or the training colleges for primary schools. The Board will have power to establish and equip schools where it thinks they are needed and where a public demand is shown for them. It will also have power to equip existing schools.

THE University College, Dublin, has at last taken definite steps to erect for itself suitable buildings. Under the Universities Act £150,000 was granted for this purpose. Of this sum £40,000 went to the Senate for the purchase of offices for the National University, and £110,000 remains for the erection and equipment of the Dublin constituent college. With this sum, which is quite inadequate, the authorities have decided to begin. They have acquired the old Royal University buildings, the site of which, with two plots of land adjoining, which have been generously presented by Lord Iveagh, covers four acres, and on this after the demolition of the present buildings, it is proposed to build a large quadrangular block round a court, somewhat similar to the new College of Science, and to concentrate all the faculties which are now widely scattered over the city into a single premises. Architects have been invited to submit designs, and it is hoped that generous donors will add to the sum at the disposal of the college.

Two noteworthy benefactions have indeed been made to university education during the past month. Lord Iveagh has added to his past generousities to Trinity College by presenting to it a sum of £10,000 to assist the study of geology and mineralogy. The sum is to be invested for the benefit of the science department, and is to be devoted in part to the payment of research assistance, and in part to the cost of the apparatus required for the development of the

school and for the prosecution of investigation. The Misses Riddell, who have previously provided a studentship in pathology and bacteriology, have presented to the Queen's University, Belfast, £25,000 to build a hall of residence for young Protestant girls coming from the country.

THE Department of Agriculture and Technical Instruction has issued the programme for technical schools and science and art schools and classes for the session 1912-13. The regulations, with certain slight alterations, are the same as for the previous session. The principal change is in the regulations applying to the introductory course. Classes in this course are introductory to the specialised courses, and must in future be taught distinct from them. The introductory course is for students whose education is not adequate for them to profit by a special technical course. Further, students are encouraged to take courses embracing groups of subjects and not separate subjects. An outline syllabus of domestic economy of the introductory course has been added in an appendix.

WELSH.

DENBIGHSHIRE is feeling the dearth of teachers. The organiser of education for the county reports that the supply of *uncertificated* teachers is quite inadequate, and that unless the bursar system can be so worked as to produce twice or three times the number of uncertificated teachers who are offering themselves at present, the result will be that *certificated* teachers to the extent of at least forty to fifty will have to be appointed where uncertificated teachers are now employed. This, one would suppose, is a consummation devoutly to be wished. But it appears that the additional expense in salaries of such a procedure would be about one penny in the pound. If Denbighshire and other counties could only be induced to do this at once it would greatly speed the day of efficient staffing. But the organiser of education, after an analysis of the causes of the shortage of teachers, proceeds in his report to suggest the following remedies: That the Board of Education should not insist upon more than two years at a secondary school prior to recognition as a bursar; that unless the senior certificate of the Central Welsh Board be modified to suit the needs of intending primary-school teachers the secondary schools be recommended to take the Oxford Local Examination as a qualifying examination; and that, as the bursar system does not appear to have had a fair trial, it is desirable that arrangements be made for discussing at an early date the whole question with the governors of the county schools.

WITH regard to Wales, though the remark would probably apply in other parts also, the organiser for Denbighshire observes that "full preparation has been made for the candidate at the commencement of his career, but little account has been taken of the provision at the end. The standard of the examination has been raised unduly in a short time, but no corresponding inducements have been provided to entice into the profession the better class of pupils, who

alone are capable of qualifying without undue strain in a reasonable amount of time. A vast number of openings are now available to pupils in our schools which were not to be found a few years ago, and it seems fairly clear that unless the remuneration offered to teachers be very considerably increased other professions will attract the best pupils, at least for some time to come. I would suggest to the committee the desirability of raising the sum offered to student teachers from £15 to £20." The committee requested the organiser to meet the school governors as soon as possible to discuss the whole question with them. The question of the payment of bursars and student teachers will be further considered.

THE annual meeting of the Welsh County Schools Association was held at Llandrindod Wells, when a letter was read from the secretary of the Welsh National Memorial Fund, expressing the thanks of the executive for the contribution from the Welsh County Schools, which amounted to £621 19s. 5d. In a discussion on a pension scheme, there was a general feeling in the association that the best kind of scheme would be one which involved no contributions from local authorities, but which left the question of supply of funds to the Treasury and the teacher, and a resolution was passed affirming this opinion for the guidance of the joint committee of various organisations that is now dealing with the matter. A majority of votes was cast for a fixed rate of contribution rather than *pro rata* to salary. It was stated that a contribution of £9 17s. for men and £7 for women would secure pensions of £100 and £60 respectively. The association also discussed the subject of the correlation of inspection and examination, when the speakers were all opposed to the system of "subjects" inspectors, which it is understood has received considerable support from certain authorities. The system was described as one in which gentlemen chosen first only as examiners were then turned loose on the schools as amateur inspectors to enforce their own fads.

THE superintendent of the Cardiff technical classes, in his report to the Cardiff Technical Schools Committee, states that last year the number of first-class successes at the internal examination was 705, second-class 422, and 374 failed. This is a considerable advance on previous years' returns. In the science and technology classes there were 2,021 on the register (an increase of 137); in the art class, 231; in the literary and commercial classes, 1,691 (increase 416); in the domestic class, 258; in music, 63; and in the day preparatory school, 182; making a total of 4,446 students—592 more than in the previous year. The elementary classes in English, botany, and German had been so successful that the demand was now forthcoming for higher stages in those subjects, and great need was reported for a class for one hour per week in commercial geography.

THE Glamorganshire Education Committee is said to be the only education committee in the kingdom which provides a summer school in mining, and to it students have come from France and South Africa. In the mining classes of Glamorganshire

there are about 2,000 students, and about 6,000 in the evening continuation classes. The Glamorgan Committee is stated to have been the first in the kingdom to arrange for classes on the Coal Mines Act of 1911, and has decided to establish seven laboratories in convenient centres, to be thoroughly well equipped for its mining classes.

RECENT SCHOOL BOOKS AND APPARATUS.

Modern Languages.

Montaigne, Essais Choisis. xiv+237 pp. *Béranger, Les Chansons.* xxiv+185 pp. (Dent.) 1s. 6d. net each.—The delightful series, "Les Classiques Français," grows steadily, doubtless a sign of the appreciation it deserves. Especially in the half-crown leather edition these volumes make delightful gift-books. The selection from Montaigne has a preface by Emile Faguet, full of scholarly charm and insight. Noël Ramère (Comte Serge Fleury) has written well about Béranger; but our pleasure in reading this introduction is marred by the excessive number of misprints, as many as six on one page.

Morceaux Choisis (XIX^e Siècle), Cours Supérieur. By E. Weekley. 126 pp. (Blackie.) 2s.—The six authors represented in this selection are Taine, Lamartine, V. Hugo, Baudelaire, Gautier, Saint-Victor, and the passages have been well chosen as giving some idea of the writers' characteristics. They are intended for students who have reached matriculation standard, and should serve their purpose well. Prof. Weekley has added a moderate number of footnotes in French, dealing with the subject-matter or explaining unusual expressions. The text is not quite free from misprints, e.g., *vast* (p. 52), *lourde* for *lourd* (p. 54), *commetre* (p. 70), *moti* for *motif* (p. 86).

Siepmann's French Series for Rapid Reading: Musset, Croisilles, Pierre et Camille. ix+106 pp. *Chateaubriand, Voyage en Grèce.* viii+111 pp. *Mignet, Histoire de la Révolution Française.* xvi+134 pp. *Scribe et Legouvé, Bataille de Dames.* ix+101 pp. (Macmillan.) 1s. each.—These nicely printed volumes should be very helpful in encouraging rapid reading. They are furnished with suitable introductions, brief notes (bearing mainly on the subject-matter), and "words and phrases," in which the English of the more difficult expressions is supplied.

La Journée d'un Petit Lycéen. By A. Auzas. 64 pp. (Harrap.) 6d.—It was a happy thought to describe the day of a *lycéen* from dawn to bedtime, and the thought has been well carried out. There are twenty-four sections, each occupying a page, and opposite each section is an appropriate drawing. A vocabulary is added containing renderings of words as they occur in the text; there are no exercises. The book is nicely printed; the only misprint we noticed is *eh* for *et* on p. 17.

Classics.

Thucydides IV. Edited by A. W. Spratt. xx+448 pp. (Cambridge University Press.) No price specified.—The veteran Thucydidean scholar offers us another book, as to which we only have one regret, that the notes for scholars are mixed up with notes for sciolists. Who knows more of Thucydides in this country than Mr. Spratt? And what an edition he might give us if he had his liberty, Poppo's learning, and English common sense. The text alone in a handy volume would be a boon, for the Oxford

Thucydides is one of the weak members of the bibliotheca.

We expect a discussion of the question raised first by Leake and afterwards discussed by many, What were the two channels of Sphacteria? Probably Mr. Spratt does not quite realise the difficulty of blocking the larger channel, ἀντιπράξεις (viii., 7), or he might have asked, Did anyone really propose this? It has a bearing on the methods of Thucydides which will readily be seen. Questions like this have a secondary place for Mr. Spratt; his eye is on the author's Greek, and he has an almost uncanny knowledge of what the author could or could not say. But he is sometimes a little too judicial, when we should like a verdict (e.g., xii., 3). Most of the suggestions of dead commentators are really not worth mentioning; only one is right, and often it is left out by your annotator. A pleasing novelty are frequent quotations from the noble translation of Hobbes.

A Commentary on Herodotus. By W. W. How and J. Wells. Vol. i., Books I.-IV. Vol. ii., Books V.-VIII. 446+424 pp. (Clarendon Press.) 7s. 6d. each net.—This book seems to be evidently compiled for the use of undergraduates, and so as to do their thinking for them. The introduction deals with the composition of the history, the author's sources and predecessors, his use of them, his travels, and so forth, all bearing on the text and all so summarised and arranged that it would be difficult to shorten it or make it clearer. It is, in fact, so well done that it leaves the reader nothing to do but to take it in. The notes are treated in the same way; and there are so many subjects in Herodotus that the editors' competence surprises the reader. Persian antiquities and religion, and things Egyptian, are not in everybody's way; here especially the old commentaries are out of date, and the book supplies a real want. The reader also wants to know, not only how Herodotus used his evidence, but what the truth is on many points which are clearer now than they were a century since. But it must be added that many of the notes are below the level of any intelligent reader—as the translations of ἔσχατα p. 139, ἐκέλευον 143, ὄσον περ ii. 310.

We hope this book will not supersede the text. The few who still read Herodotus because they love the man and relish his admirable stories had better not read this commentary unless they get into difficulties; for, as Dr. Johnson said, notes make details clearer but obscure the whole. If they do get into difficulties, however, they will find them all solved.

English.

The Romance of Words. By Ernest Weekley. 210 pp. (Murray.) 3s. 6d. net.—Prof. Weekley has been singularly happy in the title of his new work, for there is nothing more romantic than the surprises of etymology; and it is with the surprises of etymology rather than with its normalities that Prof. Weekley deals. There are in his work, as is inevitable, many of the instances given by Mr. Smith in his "English Language"; but the purpose of the two books is dissimilar, for Prof. Weekley is concerned with words as such, and not as ingredients in the growth of a national language. Both books are, of course, as the authors clearly and gratefully state, much indebted to the great Oxford Dictionary. To give an idea of the exciting fare provided, we quote a line or two from the preface, where it is pointed out "that *Tammany* was an Indian chief, that *assegai* occurs in Chaucer, that *jilt* is identical with Juliet, that *brazil* wood is not named from *Brazil*, that to *curry favour* means to comb down a horse of a particular colour, and so forth."

The Revised English Grammar. A new edition of West's "Elements of English Grammar." 336 pp. (Cambridge University Press.)—The chief feature of this new edition is the adoption of most of the recommendations of the committee on grammatical terminology. If all the very small type had been omitted, we should not have complained.

A Skeleton English Grammar. By S. R. Unwin and G. Abbot. 32 pp. (Fisher Unwin.) 1s. net.—There is sound sense in this idea of compiling a mere skeleton of grammar; it leaves the teacher with something to teach, and puts on record a convenient minimum for reference. The joint committee on terminology has been followed almost throughout, and we have nothing but welcome to offer to this interesting experiment.

Longmans' English Course for Indian Schools. By J. C. Allen. In three years each with teacher's book. From 2 to 8 annas.—These books are skilful adaptations for Indian children of methods now happily common for teaching foreign languages orally. The teacher's books provide very full hints for developing the lessons along interesting lines.

History.

The Historical Growth of the English Parish Church. By A. H. Thompson. xi+142 pp. (Cambridge University Press.) 1s. net.—This is intended to be a companion and complement to the author's "Ground Plan of the English Parish Church," which we reviewed a short time ago. We confess we have found it more interesting than its predecessor. Mr. Thompson has found it necessary to illustrate his own saying that there is much human history in the growth of our parish churches, and the result is a readable book, with good pictures, a bibliography, and an index. The number of churches which Mr. Thompson must have not merely visited but studied is astonishing.

The Dawn of History. By J. L. Myres. 256 pp. (Williams and Norgate.) 1s. net.

The Wanderings of Peoples. By A. C. Haddon. vii+124 pp. (Cambridge University Press.) 1s. net.

To those who would like to know what is now believed by scholars as to the beginnings of history, what has been discovered by archaeologists, and what on this evidence and on that of geography can be deduced as to the earliest knowable history of mankind, we recommend these two books. They are not easy reading; they are full of strange technical terms; though both writers do their best to address the general reader. But for those who have patience to read each of them through twice there is a reward. Prof. Myres confines himself to the old world. Mr. Haddon goes through each of the five "continents" in turn, and gives a map to illustrate the "wanderings" in each. Each has an index and bibliographies.

Junior School British History. By A. D. Innes. vii+341 pp. (Rivingtons.) 2s. 6d.—In this little book Mr. Innes shortens for junior forms the contents of two of his other books, and provides his chapters with maps and "notes," some of which are useful lists of dates. There is also a good index. It is a good introduction to British history.

Geography.

The Statesman's Year Book, 1912. Edited by Dr. J. Scott Keltie. 1511 pp. (Macmillan.) 10s. 6d. net.—In its general arrangement the present issue differs little from that of previous years. In the statistical tables the latest figures are given, the various articles

have been revised, and hence the Year Book maintains its position as one of our leading books of reference. The important events of the past year are duly recorded; to the student and to the teacher this is one of the most useful features of the volume. From day to day current events are described in the Press, but after a few months have elapsed the average reader finds it very difficult to give a connected account of what he read at intervals of days or weeks; for instance, the changes in India due to the King's visit are pointed out; the events connected with the revolution in China are noted as late as March, 1912.

Eight maps are included in the present edition, among which may be mentioned a map of the United States showing the density of population from the census returns of 1911; a density of population map of India; a map to illustrate the Franco-German Congo Agreement, 1911, showing the new boundaries and concessions of territory which France made to Germany in return for the settlement in Morocco. Another useful feature of the Year Book is the list of books of reference at the end of each chapter; this adds greatly to the value of the work.

Science and Technology.

The Student's Lyell. Edited by John W. Judd. 56+645 pp. Second edition. (Murray.) 7s. 6d. net.—“The Student's Lyell” has an established reputation among students of geology, and stands in no need of commendation. Its value, nevertheless, has been enhanced materially by the addition, to the second edition, of an interesting history, by Prof. Judd, of “the events which led up to the production of Lyell's epoch-making book,” “The Principles of Geology.” This takes the form of an introduction of 32 pages. A series of notes on additions to geological knowledge since the appearance of the first edition is also added.

Plant Physiology. By Prof. B. M. Duggar. xv+516 pp. (New York: The Macmillan Company.) 7s. net.—The place of botany as an educational instrument is now established, but it still suffers in some quarters from the reproach that its subject-matter is remote from the serious needs of life. This delusion is refuted effectually by almost every section of the book before us. An unusual amount of detail, without sacrifice of clearness, is included in the accounts of the various functions of plant members, and in addition very full descriptions are given of modern methods of plant breeding and of intensive culture by subjecting growing crops to varying conditions of light, temperature, chemical stimulation, and the like. Almost every chapter is provided with instructions for qualitative and quantitative practical work having an important bearing on agriculture. The plants selected for description and experiment are in almost all cases familiar and directly useful species. The practical character of the course, its wide range, and essentially modern outlook make the book of importance to all persons interested in scientific agriculture or in the organisation of botany courses.

Evolution. By Prof. Patrick Geddes and Prof. J. Arthur Thomson. 256 pp. (Williams and Norgate.) 1s. net.—It is safe to say that no other book of the same size as this gives so well-balanced and illuminating an account of evolution as the word is understood by biologists to-day. Admirably concise and vigorous in style, it ranges from Lucretius to Bergson, does justice to Darwinism and Mendelism, and yet finds room for a wise chapter on the social origins and interactions of evolution theories. It is emphatically a book to read and re-read. It ought, however, to contain an index.

Pedagogy.

Outlines of the History of Education. By Prof. W. B. Aspinwall. xvi+195 pp. (New York: The Macmillan Company.) 3s. 6d. net.—We have in this work a very valuable conspectus of the history of education, the preparation of which must have involved an immense amount of labour. There are five sections, dealing respectively with education in antiquity, in Greece and Rome, during the Middle Ages, during the period of the Renaissance, and in modern times. Each section gives references to authorities, and states the chief characteristics of the educational efforts or movements in various countries. The notes are of the kind which a student would best make for himself as representing the outstanding points of works or lectures relating to the evolution of educational thought and practice, but no ordinary student could hope to cover the vast field surveyed by Prof. Aspinwall; and to possess this triangulation of prominent points mapped in convenient form for reference is indeed to have cause for gratitude to the author. As a guide to the history of education the work will be found invaluable, and as an index indispensable. It is not surprising that in some cases the notes referring to education in England, such, for instance, as the descriptions of “Voluntary Schools” and “Board Schools” on p. 177, do not exactly represent the present position of our public elementary schools, all of which are now under local education authorities; but that is a minor detail. Taken as a whole, the book is a digest of all that is important in educational history, and every student who desires to know the distinguishing characteristics of the educational philosophies of the world will obtain a copy.

EDUCATIONAL BOOKS PUBLISHED DURING MAY, 1912.

(Compiled from information provided by the Publishers.)

Modern Languages.

- “A Practical Italian Grammar. By L. M. Shortt. 308 pp. (George Allen.) 5s. net.
 Erckman-Chatrian, “Waterloo.” Re-issue with Vocabulary. By A. R. Ropes. xvi+372 pp. (Cambridge University Press.) 2s.
 “Exercises in French Free Composition. By R. N. Baron. 176 pp. (Mills and Boon.) 1s. 6d.
 “A History of French Literature.” By C. H. Conrad Wright. 978 pp. (Clarendon Press.) 12s. 6d. net.
 “Outlines of German Grammar.” By A. E. Wilson. 64 pp. (Clarendon Press.) 1s. 6d.
 “Examination Notes on Spanish.” By A. Calvert. 56 pp. (Pitman.) 1s. net.
 “Examination Notes on German.” By Dr. A. Hargreaves. 50 pp. (Pitman.) 1s. net.

Classics.

- “Vergil's Athletic Sports.” (Bell's Simplified Latin Classics.) Edited by S. E. Winbolt. x+87 pp. (Bell.) 1s. 6d.
 “Graduated Passages from Latin Authors for First-sight Translation.” Part i., Easy; part ii., Moderately Easy; part iii., Moderately Difficult; part iv., Difficult. By H. Bendall and C. E. Laurence. Part i., vi+78 pp.; part ii., iv+120 pp.; part iii., iv+136 pp.; part iv., iv+68 pp. (Cambridge University Press.) 1s. each part.
 “Silva Latina; a Latin Reading Book.” By J. D. Duff. viii+184 pp. (Cambridge University Press.) 2s.

"Legends of Gods and Heroes: a First Latin Reader." Illustrated. (Elementary Classics.) By T. S. Morton. 156 pp. (Macmillan.) 1s. 6d.

"A Commentary on Herodotus. 2 vols. By W. W. How and J. Wells. 458+432 pp. (Clarendon Press.) 7s. 6d. net each.

"The Greek Genius and its Meaning to Us." By R. W. Livingstone. 250 pp. (Clarendon Press.) 6s. net.

English: Grammar, Composition, Literature.

"First English Exercises." Reprinted from "A First English Course." By Frank Jones. 176 pp. (Blackie.) 1s. 6d.

"Letters of Great Writers, from the Time of Spenser to the Time of Wordsworth." Edited by the Rev. Hedley V. Taylor. 372 pp. (Blackie.) 4s. 6d. net.

"Historical Lyrics and Ballads." Book I., Before 1485. (Plain Text Poets.) Edited by S. E. Winbolt. 112 pp. (Blackie.) 6d.

"Life of Lord Herbert of Cherbury." By Himself. (Blackie's English Texts.) Edited by W. H. D. Rouse. 126 pp. (Blackie.) 6d.

"The Revised English Grammar for Beginners." New edition. Based upon the recommendations of the Committee on Grammatical Terminology. By A. S. West. viii+120 pp. (Cambridge University Press.) 1s.

"Key to the Questions contained in West's Revised English Grammar and Revised English Grammar for Beginners." By A. S. West. 126 pp. (Cambridge University Press.) 3s. 6d. net.

George Eliot, "Silas Marner, the Weaver of Raveloe." By F. E. Bevan. xxiv+214. (Cambridge University Press.) 1s.

Pope, "Rape of the Lock" and "Essay on Criticism" Combined. Edited by G. Holden and J. Sargeant. 110+80 pp. (Clarendon Press.) 3s. 6d.

Byron, "Childe Harold III." Edited by H. F. Tozer. 114 pp. (Clarendon Press.) 1s. 3d.

Jane Austen, "Pride and Prejudice." Edited by K. M. Metcalfe. 436 pp. (Clarendon Press.) 2s. 6d.

Ben Jonson, "Forest, Underwood, and Timber." ("Q" Classics.) 48 pp. (Clarendon Press.) 3d. paper, 4d. cloth.

"The 'Guide' Word Books." Published in four books, Nos. 1 to 4, for Spelling and Composition. 48 pp. each. (Davis and Moughton.) 2d. each.

"Mrs. Browning and her Poetry." (Poetry and Life Series.) By Kathleen E. Royds. 136 pp. (Harrap.) 10d.

"Scott and his Poetry." (Poetry and Life Series.) By A. E. Morgan. 160 pp. (Harrap.) 10d.

"Heroes of Old Britain: Retold from Geoffrey of Monmouth." by David W. Oates. 160 pp. (Harrap.) 9d.

"Dramatic History Reader, III." Edited by Fred E. Melton. 160 pp. (Harrap.) 10d.

"A Dictionary of Synonyms." (The People's Books.) By Austin K. Gray. 96 pp. (Jack.) 6d. net.

More, "The Utopia." Edited by W. D. Armes. 408 pp. (Macmillan.) 2s. 6d. net.

"Stories from History and Literature." In three series. Illustrated. By A. Gertrude Caton. 48 pp. each. (Macmillan.) Limp cloth, 5d. each.

Shakespeare, "King Lear." (Tudor Shakespeare.) Edited by V. C. Gildersleeve. 216 pp. (Macmillan.) 1s. net.

Shakespeare, "Much Ado About Nothing." (Tudor Shakespeare.) Edited by W. W. Lawrence. 156 pp. (Macmillan.) 1s. net.

"Shakespeare, the Tragedies of." (Oxford Editions

of Standard Authors.) 1,315 pp. (Oxford University Press.) 2s.

Ruskin, "Sesame and Lilies." Edited by G. G. Whiskard. (Oxford University Press.) 1s. 6d. net.

History.

"The Rise and Fall of Nations." By W. J. Balfour-Murphy. 346 pp. (Allen.) 5s. net.

"The Age of Alfred (A.D. 664-1154)." By F. J. Snell. 258 pp. (Bell.) 3s. 6d. net.

"History Questions." (Civil Service Examination Papers.) Edited by A. Percival Newton. iii+91 pp. (Bell.) 1s.

"Industrial History of England." By H. Allsopp. xii+160 pp. (Bell.) 2s.

"American Independence and the French Revolution." (Bell's English History Source Books.) Edited by S. E. Winbolt. viii+120 pp. (Bell.) 1s. net.

"Wall Pictures from a School History of England." By C. R. L. Fletcher and R. Kipling. (Clarendon Press.) Unmounted, 4s. 6d. net.; mounted on stiff boards, with gelatinized surface, 1s. 6d. extra; the set of four pictures, 16s. net.

"The Story of the Roman People." By E. M. Tappan. 272 pp. (Harrap.) 1s. 6d.

"Problems and Exercises in British History." Vol. iii., Book "D." The Second Anglo-French Struggle. By J. S. Lindsey. 112 pp. (Heffer.) 4s. 6d., interleaved 5s.

"The Growth of Freedom." By H. W. Nevinson.

"Julius Cæsar: Soldier, Statesman, Emperor." By Hilary Hardinge. "England in the Middle Ages." By Mrs. E. O'Neill, 96 pp. each. (The People's Books.) (Jack.) 6d. net each.

"The History of the People of Israel in Pre-Christian Times." By Mary Sarson and Mabel A. Phillips. With a Preface by the Rev. A. A. David. With 4 maps. (Longmans.) 4s. 6d. net.

"Paths of Empire." 255 pp. (McDougall.) 1s. 6d.

Geography.

Cambridge County Geographies: "Dumfriesshire." By J. King. x+176 pp. "Perthshire." By Peter Macnair. xii+180 pp. "Renfrewshire." By F. Mort. x+178 pp. (Cambridge University Press.) 1s. 6d. each.

"The Marlborough Country." By H. C. Brentnall and C. C. Carter. 172 pp. (Clarendon Press.) 2s. 6d. net.

"A Class-book of Physical Geography." Illustrated. By A. T. Simmons and Ernest Stenhouse. 444 pp. (Macmillan.) 4s. 6d.

Mathematics.

"The Calculus for Beginners." By W. M. Baker. viii+156 pp. (Bell.) 3s.

"Geometry for Schools." By W. G. Borchardt and A. D. Perrott. Vols. i-iv., xiv+340 pp. 3s. Vol. iv., vii+97. 1s. (Bell.)

"An Introduction to Geometry." By E. O. Taylor. 140 pp. (Clarendon Press.) 1s. 6d.

"Examples from a Geometry for Schools, with or without Answers." By F. W. Sanderson and G. W. Brewster. x+148 pp., and x+138 pp. (Cambridge University Press.) 1s. 6d.

"Algebra for Secondary Schools." Vol. i., To Quadratic Equations; vol. ii., From Quadratic Equations. By C. Davison. Vol. i., viii+268 pp.; vol. ii., viii+316 pp. (Cambridge University Press.) 2s. 6d. per vol.

"Numerical Trigonometry." By J. W. Mercer. x+158 pp. (Cambridge University Press.) 2s. 6d.

"Examples in Numerical Trigonometry." By E. A. Price. viii+90 pp. (Cambridge University Press.) 2s.

"Direct Arithmetics." Teachers' Books. Books I. and II. 96 pp. in each. (McDougall.) 9d. net each.

"Direct Arithmetics." Pupils' Books. Book III. 64 pp. (McDougall.) Paper cover 3d., cloth cover 4d.

"Examples in Arithmetic." Part ii., Taken from a School Arithmetic, with Answers. By H. S. Hall and F. H. Stevens. 192 pp. (Macmillan.) 2s.

"Examples in Arithmetic." Part ii., Taken from a School Arithmetic, without Answers. By H. S. Hall and F. H. Stevens. 174 pp. (Macmillan.) 2s.

"A School Algebra." Parts ii. and iii., with Answers. By H. S. Hall. 282 pp. (Macmillan.) 2s. 6d.

"A School Algebra." Parts ii. and iii., without Answers. By H. S. Hall. 260 pp. (Macmillan.) 2s. 6d.

Science and Technology.

"Heat Engines." By H. A. Garratt, xii+332 pp. (Arnold.) 6s.

"South African Geology." By E. H. L. Schwarz. 200 pp. (Blackie.) 3s. 6d. net.

"The Gateways of Knowledge: an Introduction to the Study of the Senses." (Cambridge Nature-study Series.) By J. A. Dell. xii+172 pp. (Cambridge University Press.) 2s. 6d.

"Annual Tables of Constants and Numerical Data: Chemical, Physical, and Technological." Vol i., 1910. 727 pp. (Churchill.) 24s. net cloth, 21s. 6d. net paper.

"Practical Exercises in Physiological Optics." By G. J. Burch. 164 pp. (Clarendon Press.) 4s. net.

"Junior Practical Chemistry." By H. W. Bausor. 96 pp. (Clive.) 1s.

"School Lessons in Plant and Animal Life." By J. Rennie. 494 pp. (Clive.) 4s. 6d.

"Laboratory Test Cards." In three sets, each containing 18 Test Cards and two Answer Cards. First year, Measurement and Matter; second year, Heat; third year, Chemistry. By John Don and H. Jamieson. (Clive.) Each 1s. net.

"Bibliography of the Mineral Wealth and Geology of China." By Chung Yu Wang. 63 pp. (Griffin.) 3s. net.

"Building Structures in Earthquake Countries." By Ing. Alfredo Montel. x+128 pp.+42 diagrams. (Griffin.) 8s. 6d. net.

"General Foundry Practice." By Andrew McWilliam and Percy Longmuir. vii+384 pp. (Griffin.) 15s. net.

"The Laboratory Book of Mineral Oil Testing." By Jas. A. Hicks. 74 pp. (Griffin.) 2s. 6d. net.

"The Foundations of Science." By W. C. D. Whetham. "Inorganic Chemistry." By Prof. E. C. C. Baly. "Radiation." By P. Phillips. "Lord Kelvin." By A. Russell. "Huxley." By Prof. G. Leighton. 96 pp. each. (The People's Books.) (Jack.) 6d. each net.

"Introduction to Analytical Mechanics." By Alexander Ziwet and Peter Field. 388 pp. (Macmillan.) 7s. net.

"Problems in Practical Chemistry." By G. F. Hood. 265 pp. (Mills and Boon.) 5s.

Pedagogy.

"A Synthesis of Froebel and Herbart." By R. D. Chalke. 257 pp. (Clive.) 3s. 6d.

"The Teacher's Craft in Church and School." A Manual for Catechists and Teachers in Day and Sunday School. By M. M. Penstone, Hetty Lee, and R. Holland. 280 pp. (National Society.) 2s. net.

Miscellaneous.

"Arnold's Albion Phonic Readers." Primer i., 3d. Primer ii., 4d. Infant Reader i., 6d. Infant Reader ii., 6d. Preparatory Reader, 8d. (Edward Arnold.)

"First Aid in Accidents." (The official handbook of the St. Patrick's Ambulance Association.) By Sir John Collie and C. F. Wightman. r88 pp. (Gill.) 9d. net.

"A Practical School Garden Note and Record Book." By John Weathers. (Longmans.) 6d.

"A Guide for the Study of Animals." By W. Whitney and others. 208 pp. (Heath.) 2s.

"Examination Papers for Entrance and Minor Scholarships and Exhibitions in the Colleges of the University of Cambridge." LXIV., Mathematics. 80 pp. 1s. 6d. LXV., Classics, Modern Languages, Law, and History. 136 pp. 2s. LXVI., Natural and Moral Sciences. 76 pp. 1s. 6d. (Cambridge University Press.)

"The Pollution of Swimming Baths." By J. G. Forbes. 15 pp. (Churchill.) 1s. net.

"Acts of the Apostles." Part i., Chapters i.-xvi. Edited by the Rev. W. H. Flecker. 100 pp. (Clive.) 1s. 6d.

"The Gospel According to St. Mark." Edited by the Rev. T. Walker and J. W. Shuker. 117 pp. (Clive.) 1s. 6d.

"Voice Production with the Aid of Phonetics." By C. M. Rice. 96 pp. (Heffer.) 1s. 6d. net.

"Francis Bacon." By Prof. A. R. Skemp. "The Brontes." By Miss Flora Masson. "Home Rule." By L. G. Redmond Howard. With Preface by Robert Harcourt. (The People's Books.) 96 pp. each. (Jack.) 6d. each net.

"In England." Illustrated. By S. G. Dunn. 122 pp. (Macmillan.) 1s. net.

"National Society's Graded Hymn Book." Part i., Hymns for Children under Eight Years; part ii., Hymns for Children between Eight and Twelve Years of Age. 72 pp. (National Society.) 3d. net.

"Fitman's Civil Service Arithmetic Tests." By P. J. Varley Tipton. 102 pp. (Pitman.) 1s. net.

"Pitman's Guide to Candidates for His Majesty's Civil Service in Copying Manuscript, Orthography, Handwriting, &c." By A. J. Lawford Jones. 48 pp. (Pitman.) 2s. net.

"Notes of Lessons on Music. Sol-fa Edition, II." By E. Mason. 200 pp. (Pitman.) 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 Use of Practical Exercises in the Teaching of Geography.

I CANNOT conceive of geography being taught without some form of "practical exercises"; the difficulty is in the exact definition of "practical" as applied to geography. I look upon practical exercises rather as a method of teaching, and to be used largely in preference to mere reading, or lecture-teaching.

Personally I doubt the advisability of starting out with a set of exercises arranged beforehand, all of which must be worked through. I prefer to use concrete illustrations and to give many practical exercises *ad hoc*. Some of these can be given before a lesson

is read by the pupil, or given by the teacher, as arranged in Dr. A. M. Davies's "British Isles," and in Carey's "First Book of Physical Geography." To work through the whole of Dr. Davies's exercises would take far more time than most of us can afford; and I think some of them can well be cut down. One can, however, make suitable selections from such an excellent book.

Here is a concrete example of the difficulty of defining exactly what we mean by practical work. A middle form in my school is studying Europe and we have reached "climate." I gave them this exercise, directing them to use L'Estrange's atlas:—

"Write out a tabular statement of the average annual rainfall, the average January temperature, the average July temperature, and the range of temperature of the following groups of places: (a) Reykjavik and Archangel; (b) Stavanger, Reval, and Perm; (c) Glasgow, Moscow, and Kazan; (d) Liverpool, Hamburg, and Samara; (e) Land's End and Kharkof."

This is a home-work exercise (for day pupils), and the next lesson will be based on the conclusions we can draw from the tables compiled. Is it practical work? I think it is, and yet one would never dream of omitting such or somewhat similar exercises in the study of the climate of Europe. Of course, we have done work on the rain-gauge and on isotherms, &c., connected with our own home-region. The *personnel* of the teacher will count for a good deal. I can imagine one teacher giving a good deal more mathematical practice than another, who may perhaps have a bias towards, say, physics. In either case one should beware of doing work that is, after all, best done by the mathematics or physics master. It is necessary for the members of the staff to keep in constant touch with each other or there is overlapping and waste of time.

As to outdoor work, some should surely be attempted. I arrange for a series of excursions the objects of which shall be (1) to widen the outlook of the pupils; (2) to train them in scientific method; (3) to teach them to use a map intelligently. I find that, in my own case, about four excursions are necessary in each form. A boy or girl (ours is a mixed school) who remains for four years will have covered a fairly wide piece of country, will have seen many types of earth-features, and, what is perhaps most important, will have learnt how to understand other districts. I find it necessary to give up an occasional half-holiday, but most of us are prepared to do that, I hope.

The question of a geographical laboratory is a most debatable one, but it seems to be assumed by many that great cost is necessary in the furnishing and equipping of such laboratories. Of course, it must mean a separate room, but for the rest the furnishing need cost little more than that of an ordinary class-room. I certainly find it a great advantage to have such a room. We have, of course, our maps handy, apparatus for occasional practical work ready, and, what I find most helpful, we have specimens of rocks, minerals, vegetable products, manufactured products, &c., ready for handing out to the pupils whenever it is necessary to refer to the various things. If any north-country teachers would like to see how we have planned our laboratory and how we use it, I shall be glad to see them at any time.

Most of us have to think about examinations, but we must recognise the improvement that has taken place recently in the scope of the questions set. It is obvious that examinations of a general kind cannot readily assess knowledge of local geography, for example. The difficulties are partly met by giving

less practical work in the upper forms, when the pupils are preparing for their leaving examinations. It does not seem to me necessary to give nearly so much practical work in the upper forms; the pupils should by this time have learnt much of geographical method, and one of our objects at least should be to develop in our pupils what may be broadly described as "geographical intelligence." This should have been achieved by the time a pupil has reached the upper forms.

A. WILMORE.

Secondary Day School, Colne.

THE graphical representation of physical, climatic, and economic statistics and the copying of maps seem to be most suitable exercises for home work, and form an excellent groundwork on which to base effective class teaching and discussion. They are not regarded as an end in themselves, and are used only so far and as often as they can be made to help in carrying out the main aim of the geographical teaching.

But the only geography that seems to deserve the title of "practical" is the exploration of unknown or partially unknown country, and as that is exactly what his own district is to the ordinary schoolboy, a field for practical work lies close at hand.

The boy is set to work to do as an explorer does: examine the nature and structure of the local hills and valleys; trace the course of the local stream to its source and mouth, and notice when it is dry or in flood, and why; observe and record the temperature, winds, and rainfall of the district; find out what crops the district will grow and what animals it supports; discover whether the local rocks are put, or capable of being put, to any use; account for the growth of the town and occupations of its inhabitants, and find out where the main roads or railroads lead and the nature of the traffic they carry. Finally, he must be able to define his position on the globe at any time, and make a map of the country for future reference.

Here are exercises varied enough for boys of all ages, and within the ability of the boys of the lower and middle forms, which are untroubled by examinations.

Time is the only difficulty, and most of the work has to be done on half-holidays, but it is worth doing.

A small party of older boys are this year spending a fortnight's holiday in camp in a new district, which will be studied on these lines. Others will be given a list of questions to answer for the places in which they spend their holidays (see "A Geographical Holiday Task," THE SCHOOL WORLD, January, 1912).

CHAS. B. THURSTON.

Kilburn Grammar School, N.W.

The Physical Training of Girls.

My experience of seventeen years' hockey in this school, now numbering 126 boarders, is entirely contrary to the statements made by your reviewer under this heading in the June number of THE SCHOOL WORLD. The physical, mental, and moral value of hockey for girls is, in my opinion, inestimable, if proper organisation and supervision is given. That there is a certain amount of risk in all athletics is admitted, but this is negligible compared with the far outweighing advantages. This term we have had one slight accident, which was at *croquet!* and in my experience gymnastics is more liable to cause accident than hockey. The statements of your reviewer in regard to "a small minority of girls"—"every physician," &c.—I think are quite unwarrantable, and I wonder what actual experience he has of hockey? I showed the review to our doctor, who visits the school regularly twice a week, and sees

even the smallest cases of accident or illness, and he expressed great surprise at the statements made. Until a few years ago I played regularly myself; I have also followed the careers of many of our first eleven hockey players, and have found them in every way fitted for the duties of life.

R. HOVEY,

Penrhôs College, Colwyn Bay. Lady Principal.

It is likely enough that there are many principals of girls' schools who would be prepared, quite conscientiously, to endorse Miss Hovey's views, and no sane person would question the inestimable value, "physical, mental, and moral," of active organised games for girls, as well as for boys, even though we have to admit the possibility, however remote, of accident to life and limb in connection with the simplest form of exercise ("You might be a butter merchant, and yet be killed by a flash of lightning"). But though it was pointed out that hockey is a game involving greater strain, during play, than even football, the risk of accident in its ordinary sense was not placed to its discredit in my review of "Athletic Training for Girls." I expressed opinions which are the outcome of observations embracing a number of girls' schools of various sizes and types in different parts of the country, and dating from a period when the game had not yet been admitted into such schools. They accord with the views held by eminent medical authorities who, while quite alive to the value of hockey as a game *per se*, have been forced to recognise its inadvisability for girls by reason of the evidence which comes before them. The principals of large and well-known schools are also coming to appreciate the danger, and are abandoning the game. The minority of adolescent girls and young women who may take up hockey with impunity cannot be sorted out beforehand; even for them, restrictions—which there is often a temptation to ignore—are necessary. On the others it too often entails disabilities which, in the earlier stages, are apt to be overlooked or misunderstood, while their remoter effects may not be fully developed for some years after leaving school.

THE REVIEWER.

School Diets.

I WAS interested in reading the article on "School Diets" in your June issue, but I think the writer takes a very optimistic view of the present diet in schools. No doubt the food is better in private schools than it was fifty years ago, but in middle-class public schools there is great need of reform.

The person undertaking the catering in schools should have a thorough knowledge of hygiene, including cooking, as it is not only important that suitable food should be bought, but that it should be cooked in a clean and appetising way with as much variety as possible. It is extraordinary that heads of schools will engage a person who knows nothing whatever about food value and cooking to do the catering in a large school.

The writer has mentioned the value of fruit and vegetables, but has said nothing about fat, which is a most important article of diet for children, especially in winter. Most children will not eat fat meat, so it must be given them in other forms, such as milk, butter, dripping, suet, &c. Puddings made of suet are very good and nourishing, and can be made in a variety of ways so as not to become monotonous.

There should always be a good supply of milk. It is false economy to cut down the milk supply. In many schools the milk puddings are made with a large proportion of water, which makes them insipid and tasteless; if they are made nicely most children will eat and enjoy milk puddings.

Cheese is another form of fat most children like,

and if eaten in the middle of the day is seldom indigestible.

Another excellent article of food that the writer did not mention is fish. As a rule, children do not like it. That is the fault of the cooking; if cooked in an appetising way they would eat it.

There should be a plentiful supply of sweet things, as children want sugar, it being necessary for their health to have plenty; fruit supplies a certain amount, but jam, marmalade, and honey should be provided.

If in schools where strict economy is necessary they would give good plain food instead of trying to give extras of inferior quality, I am sure the result would be good. The diet in most schools could be very much improved without any increase in expenditure if care, thought, and a thorough understanding of food value were exercised by the caterer.

M. A. WOLFF.

THE writer of this letter enumerates several of the points which were mentioned in the papers and approved in the discussions at the Conference with a unanimity which implied a widespread recognition of their importance. Good butter is the best form of adventitious fat, and, when not obtainable, margarine combined with a small proportion of milk is probably the most palatable, attractive, and butter-like substitute. The value of sugar as an energiser and muscle food is generally admitted, but it should not be allowed between meals—as sweets, *e.g.*

The special object of the article referred to was to emphasise the fact that while dietaries, rarely deficient in quantity, could be often greatly improved by certain modifications of details in arrangement, cooking, and serving, changes and additions in this direction are really of quite secondary importance compared with the ability or otherwise of the eater to consume his food properly. The cheese alluded to affords a typical illustration; it is much more than "another form of fat," containing on the average an equal weight of valuable proteid. But the combination of this with the fat seriously hampers the digestion of cheese in the stomach unless it be most thoroughly masticated or has been previously grated and cooked or dissolved by the aid of a small quantity of alkali. The writer frequently meets with cases of "indigestion" in school children due to cheese being taken at the end of dinner, when the time allowed is quite insufficient to permit of its being properly masticated—even if the child were willing and able to do this.

THE WRITER OF THE ARTICLE.

Private Governesses and the Insurance Act.

AMONG the classes affected by the Insurance Act in a way that may have been scarcely reckoned on by its promoters are the governesses and tutors in private families. This particular section of the community will need to join, in their own interest, some recognised provident society which understands their needs and which will do its best to meet them within the limits of the Act.

The Secondary, Technical, and University Teachers' Provident Society is being organised by a conference, of which we have the honour to be, respectively, chairman and honorary secretary, representing the leading secondary and technical associations, the Assistant Masters', the Assistant Mistresses', the University Women Teachers', the Technical Teachers', and the Teachers' Guild.

It offers the privilege of membership to all secondary, university, and technical teachers, and to *bona fide* tutors and governesses who come under the Act, and though only offering normal benefits in the first instance, hopes, owing to the exceptional healthiness of the majority of its members, to be able

in the future to give additional benefits especially adapted to the needs of its members.

May we be permitted through the columns of your paper to ask those interested, either as employers of secondary teachers or of governesses, or as employed persons eligible for membership, to write to the secretary at 35, John Street, Bedford Row, W.C., for further particulars?

The employer is now beginning to realise that he is responsible for the due payment of contributions. Moreover, it is to the advantage of all concerned that the employed person shall become a member of a provident society rather than a deposit contributor. On the other hand, governesses and their employers will find it difficult to get into touch with a suitable society. It is for this reason that we venture to trespass upon your space.

GERALD T. HANKIN.
ERNEST TIDSWELL.

The Question of Sequence in Geometry.

"PARENT" in his letter on the question of sequence in geometry, published in your last issue, seems to have missed the cause of his son's difficulties; apparently it is just this slavery to a "sequence" which handicapped him. If geometry were taught as is physics, mechanics, botany, or any other science, with the direct object of imparting a knowledge of the subject, we should hear no more of the prime importance of a sequence. Of course, the subject must be developed in a reasonable order, as is always done in the treatment of such kindred subjects as algebra and trigonometry; but in these cases the pupil is not kept back from the real work by learning (possibly committing to memory for a few short hours) the proofs of a large number of theorems in some definite order. Even in geometry, it having once been realised that the proof of a fact is sufficient, surely there is no need to keep this proof always fresh in the memory—this scarcely leaves time for anything else.

I was pleased to find that with the important exception of Profs. Bryan and Dale, most of those who gave opinions in the May issue of *THE SCHOOL WORLD* seemed to take up some such position as this, more or less definitely. The case appears to be this: That geometry should not be taught as an exercise in logic, but for its own sake, as one of the most interesting and important of the sciences. Let the logician make use of it for his own purposes if he wishes, but he should not continue to fetter the geometrician as Euclid did. Prof. Bryan suggests the writing of some book to keep teachers in line; but the less a teacher has to do with such books the better; a dead level of uniformity is scarcely a sign of life. Turning to the (at present) necessary evils, examiners and examinations, the former will find their task more difficult, but surely not less interesting, when they have to deal with applications more than with theorems.

Prof. Dale, in the May issue, says: "I have seen papers in which boys, asked to prove that a straight line drawn through the middle point of one side of a triangle parallel to the base bisected the remaining side, wrote: 'By Prop. x in —'s geometry, a straight line drawn parallel to one side of a triangle divides the other sides proportionally, hence, &c.'" He dislikes the sequence, and says that he had not a copy of the book named, so consulted others. In a text-book the sequence of which is most rigid (Mr. Budden's, published by Messrs. Chambers) this is the method of argument, and the treatment of similar figures is quite logically worked out. Possibly this was the text-book used, one which an examiner should certainly have seen. It has one specially good point, in that similarity of triangles follows congruence. Such

a case enables one to realise the responsibility which rests on an examiner in case he may wrongly assess a candidate's answer, and therefore the high importance of his work.

A TEACHER OF GEOMETRY.

A "TEACHER of Geometry" wishes the subject to be taught in the same manner as physics, mechanics, botany, or any other science; logic is to be discarded, and we are to concern ourselves only with facts. This means that the statements that the opposite angles of a cyclic quadrilateral are together equal to two right angles, that the density of mercury is 13'596, and that the acceleration due to gravity is 32'2 ft. (sec.)², are to be presented to a schoolboy as possessing equal degrees of cogency, being based upon evidence of a similar kind. He is to learn the geometrical fact, not as a deduction from a certain ideal set of fundamental assumptions, but from more or less accurate measurements made upon numerous quadrilaterals.

If such be the "Teacher's" view, it is based upon a total misconception of the nature of geometry. To make geometry merely an experimental science is indeed to fetter it, imposing upon it the limitations due to the imperfections of our senses and powers of observation and measurement. It is the great and enduring glory of Euclid and the Greek geometers that they first founded a science free from these limitations—a body of truths the validity of which is conditioned solely by the nature of our reasoning processes, and is independent of all accidents of space, time, and matter. In such a science many sequences are possible, but sequence there must be, and to attempt to deal with the subject in any other way would be a retrograde step and most disastrous to education. I freely admit that an experimental introduction to the subject is necessary for young children, but geometry itself is abstract, and no progress can be made in it without logic.

With reference to the last point in the letter, I may say that the example I gave was intended to show how in the absence of a recognised sequence the attempt of the examiner to test adequately a candidate's knowledge was frequently defeated. The examination in question was upon the subject-matter of the first four books of Euclid; it was therefore reasonable to expect an elementary proof. Further, the proof given is trivial, being merely a particular case of the general theorem. I have only to add that examiners, who presumably are not altogether ignorant of their subject, can scarcely be expected to study all the elementary text-books which appear from time to time.

J. B. DALE.

The School World.

A Monthly Magazine of Educational Work and Progress.

EDITORIAL AND PUBLISHING OFFICES,

ST. MARTIN'S STREET, LONDON, W.C.

Articles contributed to "The School World" are copyright and must not be reproduced without the permission of the Editors.

Contributions and General Correspondence should be sent to the Editors.

Business Letters and Advertisements should be addressed to the Publishers.

THE SCHOOL WORLD is published on the first of each month. The price of a single copy is 6d. Annual subscription, including postage, 7s. 6d.

The Editors will be glad to consider suitable articles, which, if not accepted, will be returned when the postage is prepaid.

All contributions must be accompanied by the name and address of the author, though not necessarily for publication.

The School World

A Monthly Magazine of Educational Work and Progress.

No. 164.

AUGUST, 1912.

SIXPENCE.

CORRELATION OF HISTORY AND GEOGRAPHY IN LOWER FORMS.

By T. BOOTH, M.Sc., Geography Master, and W. ORMESHER, M.A., History Master, County High School for Boys, Leytonstone.

THE present is not the time, nor are the pages of this magazine the place, in which it is necessary to insist on the need for correlation, and perhaps history and geography are two of the most obvious subjects for correlation. Certainly, the two subjects can scarcely be presented separately, for history is the story of man's struggle with, and adaptation to, that environment which geography describes, while geography must find the illustration of its principles in actual history. This, then, needs no emphasis, but it may not be profitless to point out some particular ways in which these pursuits have actually been connected easily and naturally in a secondary school.

ROMAN ROADS AND RAILWAYS.—In dealing with the Roman conquest and Roman government of Britain, it is possible, in many cases, to illustrate by reference to Roman remains. Common as these are in some districts, it is not all places that possess relics of Roman stations or fortifications. Roman roads, however, are a feature of Roman Britain of which almost all can see traces, and of which almost all have some idea. To many, in fact, the Romans must seem to have been pre-eminently road-makers, for few parts of the country are without some traces, a green ribbon ascending a hill or crossing a rolling down, a straight stretch of road following the line of some Roman road, and often bearing that name, or a town with a name that tells of a road, Stratford or Chester-le-Street. Any account of Roman Britain, then, which omitted the road-system would be inadequate, and any teaching which neglected the illustrations which, in many districts, are familiar to the pupils would suffer no slight loss. Once started on Roman place-names and Roman roads, the average Form III. boy is difficult to stop, and

if, by the aid of geography, an understanding of the whole system can be obtained, the trouble is well repaid; this is what was attempted in our school.

A contour map¹ was used and compared with a map of Roman Britain. The general story of the Conquest having been followed with maps, the scenes of campaigns, the regions most likely to be dangerous, and, consequently, the sites of large camps, were roughly known. From this it was, in many cases, easy to trace the roads which should be most direct while taking the best way through hilly country. Here knowledge of a contour map was necessary, and the enthusiasm with which Form III. applied this knowledge assured the success of the lesson. In flat country, of course, the suggestions were rather varied, but over hills—and particularly over the Pennines, and along the coasts of North and South Wales, the agreement with the Roman road-makers was often very close, and the admiration for the Roman surveyors, whose limitations and disadvantages were recognised, was great.

When the principal roads had been marked (Fig. 1), the time came to compare another map, prepared in a geography lesson, a railway map (Fig. 2). Railways, of course, often follow the lines of Roman roads owing to the physical difficulties to be surmounted, and to the fact that roads have often determined the position of towns. The problem was to make this agreement as emphatic as possible. Maps placed side by side would show the similarity between the roads and railways, but a plan here pursued in many geography lessons seemed better. The railway map was drawn on the same scale as the Roman-road map, and on transparent paper, which was now placed over the other. It was at once seen that the S.E.R. follows the line of the Roman road to Canterbury; the L. & S.W.R. follows, largely, the Roman road from London to Exeter. The

¹ Philips' "Visual Series of Contour Outline Maps." 25 for 1s.

G.E.R. partly follows the road from London to Colchester and Norwich. The G.W.R. to Fishguard takes the same line as the Roman road to Carmarthen, and the L. & N.W.R. North Wales line follows the Roman road to Conway. The N.E.R. and G.N.R. lines through Lincoln, Doncaster, and York to the north follow Ermine Street; the L. & N.W. line from London to Birmingham, and the G.W.R. line on to Chester, largely follow Watling Street. A road from Watling Street through Lancaster, up the Lune valley, over Shap Fell and down the Eden valley to Car-

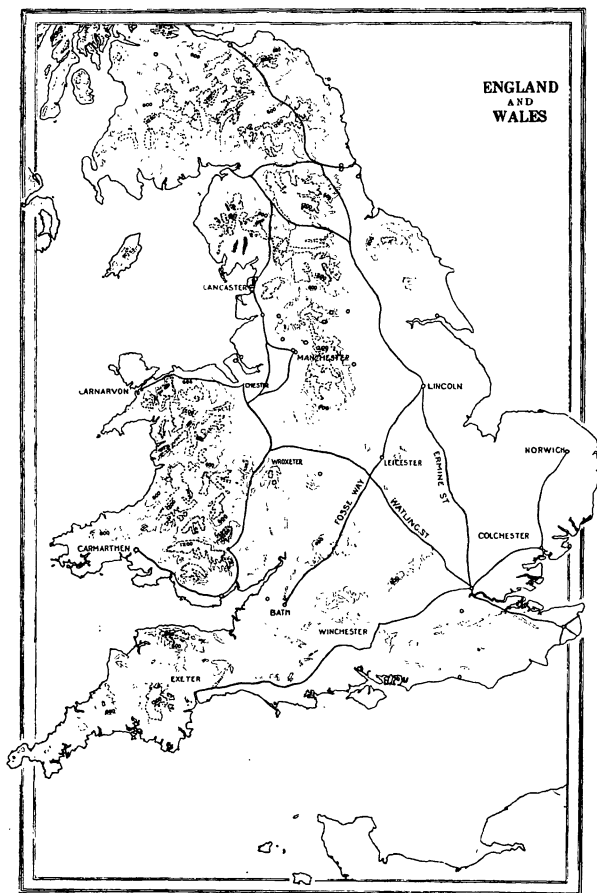


FIG. 1

lisle, is largely followed by the L. & N.W.R. and partly by the M.R.

A valuable exception is afforded by the Fosse Way from Bath, through Venōnae (Claycester) to Leicester. The Midland line from Bath to Birmingham is some distance north-west of this road, for it serves centres of population which had no existence in Roman days. Then Venōnae was at a junction of the Fosse Way and Watling Street; now the M.R. and L. & N.W.R. cross at Birmingham, some miles to the north-west.

ENGLISH KINGDOMS.—The same contour

maps were used in later lessons on the English kingdoms. When the positions of these kingdoms along the west and south coasts had been roughly indicated, the problems were: which of these kingdoms would become predominant, and in what way would they expand? The map (Fig. 3) supplied the answer to both. Kent and Sussex were prevented from expanding by Wessex, which, however, could move westward at the expense of the Britons, whom she pushed westward till she reached difficult country, where her progress was delayed. Her extension north-



FIG. 2.

ward to the Thames valley barred the way for Middlesex, while Mercia, quickly overrunning the Midland Plain, blocked the expansion of East Anglia. In the north the two Northumbrian kingdoms, later united, found the Pennines a great obstacle to their movement westward. Movement in the north, through Lothian, was difficult, and it was not in that way that the British lands west of the Pennines could be won. There remained the three gaps in the Pennines, and careful examination of these gaps reduced the number of practicable passages to one. The Tyne Gap,

leading only to more mountainous country, was useless; to reach the Cheshire Gap necessitated war with the powerful kingdom of Mercia. The Aire Gap remained, and through this the Northumbrians poured and overran the adjoining portions of the British kingdom. Soon they pressed south, and at Chester (613) overcame the Britons, but extension south brought long wars with Mercia.

In many other lessons history and geography are correlated, an obvious example being the division of England between the two

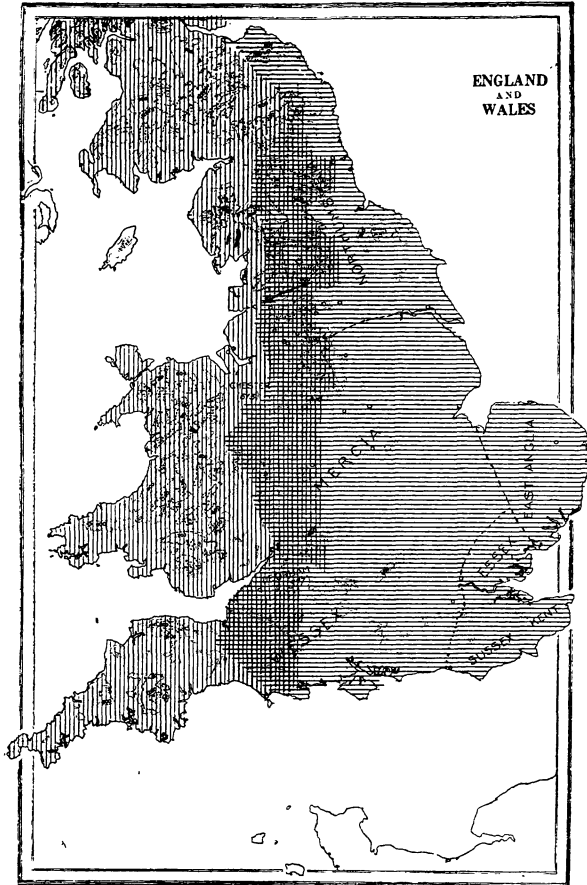


FIG. 3.

parties in the Civil War. Since the trading and populous portions would be on the side of Parliament it is necessary only to discover which are these portions. The Form IV. boy, who knows the cause of the growth of the Northern and Midland towns, and knows that growth to have been due to discoveries in the eighteenth century and later, will look elsewhere, and proximity to the Continent and the sheep-grazing of the Downs will lead him to decide on the south and south-east as Parliamentary strongholds. But there are many such instances which need not be mentioned.

ARMY EDUCATIONAL CERTIFICATES.

By A. P. HATTON.

THE Army schoolmaster is passing through a crisis. On the one hand the War Office is presumably anxious to deify him; and on the other the Treasury would apparently delight in his removal. His military power is fast exceeding that of the sergeant-major; he holds the careers of non-commissioned officers in the hollow of his hand; the pay of every soldier is dependent on his tuition; he is the power behind the regimental throne—and yet proposals for transferring all the work of Army schools to the Board of Education are constantly emanating from the Treasury, whilst the deterioration of late years in the financial position of the Army schoolmaster has already been explained in *THE SCHOOL WORLD*.¹

Educational certificates have always been the one unavoidable passport to promotion in the Army; then a few years ago the soldier's proficiency pay was made dependent upon the attainment of a third-class certificate; and now all recruits at depôts are compelled to go to school until they obtain the latter. Thus the Army schoolmaster's work has latterly been doubled, and he may perhaps be excused for thinking that he is partly the victim of an unreasonable War Office, and partly of the board schools' shortcomings. For, on the one hand, it has yet to be proved that schooling bears any intimate relation to firing-line efficiency, and, on the other, if board school education were thorough and lasting, it would not be necessary to coach soldiers for a certificate (the third-class) that only corresponds to Standard III. (boys of eight or nine years of age) in civilian life! As a matter of fact, the board school training he has undergone ought, in any case, to suffice the Army recruit in these days, when his time and energies are sufficiently taxed by the legitimate demands of purely professional training, and particularly in view of the fact that there is nothing special or technical in the subjects for a third-class certificate, except that dictation consists of extracts from regimental orders.

Perhaps it is this that most impresses the Army schoolmaster with the thanklessness of his position. Officers of experience might well ask: Must the school-room supplant the battlefield as a soldier's supreme test? Must the blackboard supplant the drill-square, and the ex-clerk or ex-cashier have preference over the muscular country-bred youth for Army promotion? A man may win the V.C. and

¹ June, 1909.

deserve a dozen, and yet, if his courage fails at mastering the decimal system, he will receive less pay than an immature and inexperienced product of the board school. There is no doubt that the possession of sufficient intelligence to know the value of restraint, co-operation, self-reliance, resource, and wise economy of energy is more necessary in the soldiers of to-day than in those of Wellington's time; but, unfortunately, the Army system of mechanical training and persistent shepherding is notorious for producing opposite effects—and it is doubtful if any amount of schooling can make good the loss! Innate cunning, inventiveness, and adaptability—which are other main attributes of the ideal soldier—can scarcely be implanted *viâ* the blackboard.

Moreover, the course of tuition is too short and too liable to interruption by military duties, the compulsory subjects are too few and irrelevant, the teaching is (quite unavoidably) too mechanical and fugitive, and the pupils, as a rule, too far advanced in life for any sound or permanent results to be obtained! Indeed, the certificates no more constitute claims to military excellence than they are passports to employment on discharge from the Army. Even the first-class Army certificate is only recognised by the Civil Service authorities as entitling the holder to exemption from the examinations for sorters, postmen, and other very minor State offices. For, in comparison with the higher education which is free even to the working-man and his children in civilian life, the Army first-class certificate cannot be said to represent any great hall-mark of intellect; as a matter of fact, it is only the equivalent of Standard VII.; and its chief utility lies in preparing soldiers for the numerous clerical and other Army posts where methodical penmanship or actuarial skill, and not the ability to march fifteen miles in full equipment, is the desideratum!

It can be admitted, of course, that even compulsory education of the Army kind might be justified if it removed the educated soldier from the old-time handicap of jealousy, if it attracted into the ranks men of a superior class and *morale*, and if it laid the foundation for intelligent effort in undeveloped minds. But, on the one hand, the plan defeats itself if the legitimate reward of mental training, namely, promotion to the commission, is not reasonably assured (and it most emphatically is not); and, on the other, there needs to be discrimination between those who, by reason of proved military proficiency, age, or long service, cannot be materially improved by scholastic training, and others who, having had State education from an early age, should find the

attainment of an Army third-class certificate a very simple matter, and who need far more the practice of purely military accomplishments! It may be quite as unfair to the tough old war-dog of innate soldierly ability who enlisted before the days of compulsory free education, or who perforce left school prematurely to support parents, to be penalised in his pay for his failure to tame vulgar fractions—when he feels it to be his real duty to tame truculent tribesmen—as it must be harmful to the content of the Army as a whole. For the scarred and be-medalled veteran might be excused for ironically asking if Cromwell's Ironsides had school certificates—or the heroes who stormed Badajos. Moreover, there are military experts who hold that too much education of the soldier is inimical to implicit and unquestioning obedience.

The suspicion that these Army educational certificates may be merely so many arbitrary and artificial barriers to higher pay or promotion, instead of real mental stimulants or tests, has some basis in the fact that (to give only one example), before a man has any prospect of the promotion that necessitates a first-class certificate, he may be more than forty years of age, and within a year or two of the completion of his total Army service! Moreover, candidates may divide their examination into two parts, and, as five years are allowed to separate the first from the second half of the examination, the practical civilian schoolmaster will be readily able to form his own estimate as to the value of such piecemeal education.

The middle-aged aspirant must either go in for feverish cramming, which may ultimately do his brain far more harm than good—or else forego the promotion, and have the mortification of seeing a younger and less experienced man jump over his head. The cramming is such, indeed, that a very large percentage of men would fail to pass at an examination for the second-class certificate twelve months after securing the first! The number voluntarily attending school in the earlier part of their Army service would be far higher than it is but for the fact that once a soldier volunteers to attend school, he is forced to continue until he has obtained his certificate; and, unfortunately, the inevitable Army parade for the purpose every day rather damps the man's enthusiasm, and may conflict with his other military duties.

Certainly the subjects for examination for first-class certificates have improved of late, for, prior to 1907, they consisted of dictation (sufficiently covered by the two preliminary certificates), "copying manuscript" (which

had its origin in the old days, when orders in the field were indifferently written instead of being printed, hektographed, or transmitted by telephone or telegraph), arithmetic, English history, and geography.

Now we have arithmetic (practically the whole subject, with special prominence given to problems), composition, map-reading (chiefly of a kind likely to be of use to the soldier on active service), English history (from the year 1688, and to include a campaign or biography), and geography (chiefly concerned with the British Empire, the seasons, climates, and varying times). These subjects are an improvement—but they only suggest how much still remains to be done, as it is by no means clear how a practical soldier is to receive assistance during a crisis in a battle from his ability to describe the Chartists or to give “the leading traits in the character and opinions of James II. which led to his unpopularity” (which were questions at one examination).

The subjects that really count in the making of the professional soldier—tactics, field engineering, military law, military history, organisation, administration, equipment, and sanitation—are entirely optional; and it is safe to say that not one possessor of the first-class certificate in every twenty troubles to qualify in any of the above all-important subjects. Moreover, the existing certificates allow of no differentiation at all between the various arms of the service, the duties and responsibilities of which are often so extremely diverse. Thus, the Royal Engineers ought to pay particular attention to mensuration, dynamics, and trigonometry, so as to find areas and volumes, heights and distances, segments of circles and strains on ropes, &c.; just as the expert artilleryman should know much of the finding of angles, trajectories, the rates at which sounds or objects travel, &c.; and so on for the different branches. History should be entirely military and fairly modern, and geography should embrace elementary strategy, and particularly concern itself with defence works, the military features of important strategical countries like Afghanistan, and the location of and distance between the various garrisons at home and abroad.

The Army schoolmaster obviously works under a disadvantage in having to teach what he may feel to be of no practical utility, and in having pupils who regard school merely as a necessary evil, and who have not the stimulus of pecuniary reward like the candidates for other kinds of Army certificates!

The same unsatisfactory state of affairs is

revealed when one comes to the question of the certificates of the soldier's teachers. To begin with, in order to induce soldiers to volunteer for the six months' arduous course of tuition in the sixteen or seventeen subjects for the acting-schoolmaster's certificate, the bait is always held out that this certificate is a valuable asset to the holder on leaving the Army. It is to be hoped that this is some encouragement to the acting-schoolmaster during the years when he finds himself a school-room fixture, so that former military juniors may pass over his head to better positions; when he may be in charge of a detachment school with as many as 150 attending and only two immature assistants; when he finds that he is expected to keep up his military efficiency as well as his schooling; when he may find himself put on military duties during school holidays; and when he realises that his ten hours of school work per day only bring him (in addition to the ordinary pay of his rank, viz., from 2s. to 3s. 3d. a day) a daily payment (not payable during vacations) ranging from sixpence if the average daily attendance of pupils does not exceed 10 up to 1s. 6d. if it exceeds 100. For when he leaves the Army he is only recognised by the Board of Education as an uncertificated teacher, and his employment is dependent upon the whim of any local education authority. This, too, is dependent upon the recommendation of the War Office.

So very few Army acting-schoolmasters have found employment in the civilian teaching profession, that there is now a tendency to view the official eulogies as to the value of the former's certificate with suspicion. Very problematical civilian employment is held to be no compensation for hard labour with loss of promotion during Army service; and it is most probably owing to the fact that men were growing more and more loath to come forward to prepare for the certificates that the War Office decided to grant, under certain conditions, to acting-schoolmasters the not overwhelmingly generous concession of a new rank—acting-schoolmaster-sergeant.² The first obstacle which the latter encounters in civil life is the illogical prejudice against ex-soldiers which still lingers in many districts; then he can give no satisfactory reply to that question on the usual application form for posts in council schools: “Have you been a pupil-teacher?”; and finally he is nonplussed when asked: “Are you qualified to teach singing (tonic sol-fa), drawing, science, swim-

² Even since this was written the Commander-in-Chief in India has issued a circular deploring the paucity of candidates for acting-schoolmasters' certificates.

ming?" For once again an Army certificate is tried and found wanting: the acting-schoolmaster is not taught these subjects! But, as a matter of fact, he may often have to try his hand at teaching one or more of them.

The Army schoolmaster proper has to teach these subjects, but it is not so many years since even his certificate did not cover school management, drawing, science, and shorthand (among other things). But in all other essential qualifications his efficiency is probably as high as could be desired, and while some add the B.A. to their attainments, others obtain the Diploma or Licentiate in the civilian teaching profession. And yet again they find themselves materially handicapped when they seek employment under the Board of Education on leaving the Army. For while civilians with the Board's certificate are welcomed in the Army as schoolmasters, and sometimes find a difficulty in coming up to the latter's standard, there is no warm welcome in civilian life for the Army schoolmaster of large experience. Indeed, even if the latter possesses a B.A. degree, it counts less towards employment in County Council schools than the Board's certificate.

The whole position is very much as follows: All Army schoolmasters and acting-schoolmasters are eligible for posts as uncertificated teachers in civil schools; but their recognition by the Board of Education as being equal to certificated teachers is limited to those who, as students, successfully completed the course of training in the Duke of York's or Royal Hibernian Military Schools in June, 1909, and subsequently; and, in exceptional circumstances only, the boon may be extended to other Army schoolmasters who have passed at either of the above schools, and qualified to teach elementary drawing and science (though the precise requirements as regards these subjects are not stated). In applying for this recognition an Army schoolmaster must satisfy the Board of Education as to his age and physical capacity, as prescribed in the Elementary School Teachers' Superannuation Rules, 1899, and he must be recommended by his inspector and the War Office.

Finally, the Board of Education reserves the right to consider all applications whatsoever on their individual merits, and to withhold recognition in such cases as it may determine—and it furthermore reserves the power to withdraw the privilege of recognition absolutely should such a course be deemed desirable! Could anything be more likely to imbue the Army schoolmaster with the conviction that all his Army examinations and varied teaching experience have not placed him on

the level of the youngest civilian teacher, and that, therefore, War Office statements as to his opportunities of continuing his beloved profession after completing the Army service are somewhat empty and misleading. At any rate, the Board of Education might have contrived for him a warmer welcome.

According to a War Office circular only twenty-one ex-Army schoolmasters and acting-schoolmasters obtained employment in civil schools in a period of more than three years! The War Office, no doubt, cited this as something to spur ambition, but it is very considerably discounted when one remembers that, approximately, twelve Army schoolmasters leave the Army every year, whilst about 150 soldiers succeed annually, at home stations alone, in securing the acting-schoolmaster's certificate! For the latter—unless he wishes to spend four or five years in working up the subjects for the Board of Education certificate—there are only two dependable openings. Either he accepts a post as teacher in some remote village at home or abroad where the conditions and salary are such as to keep at a distance the properly-certificated civilian teacher, and where he is welcomed solely because, having had an Army training, he will be better able to discipline the rough country lads; or else he snatches in disillusionment and despair at the position of "ex-soldier-teacher" to the Royal Garrison Artillery under the War Office; and the fact that many are glad to do so sufficiently attests the severity of the handicap placed on ex-Army teachers by the Board of Education. For the position referred to, though it entails employment according to the long hours (nine or ten a day) which are common in Army schools, yet only carries commencing pay at 24s. a week—with two triennial increments of 3s. a week up to a maximum of 30s.—with, of course, no uniform or other regular allowances whatever!

The Army schoolmaster proper, however, could scarcely be expected to descend to such conditions, and so he more often is glad to seek comparative oblivion on discharge as an Army clerk or accountant or barrack warden, &c. But it must be acknowledged that he is deserving of a much better fate, and of much better treatment from the Board of Education, if only because of what Sir George Arthur has eulogised as "the unobtrusive and ill-requited painstaking of the Army schoolmaster"! The radical reform for all the evils indicated must lie in the thorough overhauling of all Army educational certificates so as to make them conform to higher standards, both of military utility and civilian acceptance!

ENGLISH FROM THE FOREIGNER'S
POINT OF VIEW.

By W. H. WEEDON.
Christiania.

THE foreign student who sets about acquiring something beyond a superficial knowledge of our language may well be appalled at the magnitude of the task that lies before him. Indeed, after several years of experience with students belonging to a nation of born linguists, the present writer has ceased to be surprised or shocked at the blunders made, and can only express wonder that any foreigner ever succeeded in mastering the English language at all.

Apart from the much vexed question of spelling—and here we undoubtedly have one of the worst stumbling-blocks in the foreigner's path—and of phonetics, which has been ably treated by Sweet, Rippmann and others, we find that there are three main classes of difficulties confronting the foreigner: vocabulary, grammar, and idiom. It may be of interest for those who come in contact with foreign students to indicate briefly the nature of the chief anomalies that are met with, particularly in the first of these divisions, and to mention some typical blunders to which the foreigner is liable.

The acquisition of even a quite modest English vocabulary is by no means an easy task. The extraordinary wealth and complexity of our language, the subtle shades of meaning, the bewildering "anglification" of many words that have a very different meaning on the Continent, are some of the difficulties that confront the serious student. Moreover, help is least obtainable where one would most naturally seek it. The ordinary English lexicographer clings to what Prof. Sweet used to term the "etymological fallacy," and it is in vain that we look for the current meaning of a word in most dictionaries. The word *discover*, for example, is defined:—to *uncover, lay open, exhibit, find out*; yet the last meaning is the one that the foreigner really needs. The German who asked a shop-keeper to "discover him a book" was correct enough from an etymological point of view, but woefully wrong from the point of view of a Londoner in 1912. Only a very few dictionaries give the least guidance in this very important matter.

The majority of the words that harass the student are either the so-called homonyms (e.g., English, *bless*, French, *blessé*), or the still more puzzling cognates with an anglicised meaning (e.g., English, *sensible*, French, *sensible*). The resulting "howlers" are there-

fore of the same character as that made by the English chaplain in France, who urged his startled congregation to drink of *l'eau de vie*, or by the dear old English lady who asked at the butcher's for *du bon vivant*. Such stories give a touch of relief to the dull monotony of language teaching, and the pupil who can see the point thereof has derived far more than mere amusement from them.

Each nation appears to have its own particular difficulties in the use of English, so that we can frequently tell from what country the speaker comes by the peculiarities of his speech. Thus, amongst the northern races, the word *become* is generally mistaken for German *bekommen*, and the results are often quaint. "Waiter," exclaimed a perspiring Swede last summer, "When can I become an omelette?" "Won't take long, Sir!" was the reply, not, perhaps, without its touch of sarcasm.

Germans go astray over the word *bath*, which they take to be equivalent to *Bad* (i.e., watering-place). Hence when a German lady informs you that she met so-and-so "*in the bath*," it is well to remember that this is not an illustration of the laxity of morals on the Continent, but merely another instance of the difficulties of our own tongue.

A Frenchman often blunders when employing the word *sensible*, which, as a rule, is not equivalent to French *sensible*. A geologist describing the first glacial period and the resulting migration of certain forms of animal life, remarked that "*the sensible ones left the country!*"

Students from northern countries are particularly liable to make mistakes in the use of *genial, sympathetic, knowing, thick*; which they suppose to be equivalent to *genius, charming, learned, corpulent*, respectively. Hence such blunders as: "Wanted, a knowing office-boy"; "His aunt is growing rather thick," &c. There is a famous instance in the translation of a well-known Biblical passage by a German: "The robbers empowered themselves of his person, blessed him very much, and took away all his objects." Those who imagine that such an illustration is far-fetched would soon change their opinion after a short experience of foreign students. Doubtless a careless or inexperienced use of the dictionary is responsible for many mistakes, although it is not so easy to explain the occurrence of such expressions as "the mislaid public," "the honoured traveller," or the startling statement that "the banquet was provided by a well-known undertaker."

The English of guide-books, time-tables and so forth is still far from perfect. In a

Norwegian railway buffet I once saw this notice :

Dinner	...	...	...	...	Fare 2s. 6d.
Lunch	...	...	...	...	Fare 1s. 6d.

and in a guide-book published for travellers on the Bergen Railway : "At the station you see wealthy and well-bred properties," whilst in his peroration the writer urges : "Are you tired, sick, or sorrowful, so come."

Many students still confine their reading to the writers of the sixteenth or seventeenth centuries, and I have met foreign graduates who were deeply versed in Chaucer, but could not carry on the simplest conversation in English.

Professor Storm, of Christiania University, tells a story of a German waiter who puzzled many customers in a London café by always answering "Anon, Sir," when summoned, and many quaint expressions that sound quite out of place in modern London, but which are evidently thought to be colloquial English by the foreigner, show quite plainly that the teaching of modern languages on the Continent still leaves much to be desired.

There are certain words that are so thoroughly English that it is perhaps scarcely fair to expect the foreigner to use them correctly until he has resided in England some months. The daughter of a prominent Danish publisher once announced with pride that her father was a *book-maker*, and her fellow guests were therefore not greatly astonished when she announced her intention of visiting a *music-hall* as often as possible.

Needless to say, words of this type frequently cause misunderstandings that are far from being amusing. Not long ago I was present at a lecture given by an old Etonian on our public school system. As we passed out I heard a German remark to some friends : "I can't understand why a man should boast of having attended a public school!" (i.e., "folk school"). Perhaps fifty per cent. of those present thought just the same. It is a little disheartening to speak for half an hour upon, say, Shakespeare's use of blank verse, and then discover that not a single member of the audience knows the meaning of the expression *blank verse*. Such occurrences are far more frequent than might be supposed to be the case, and there was much wisdom in the advice of the old English teacher in Berlin : "Always be prepared to be *mis-understood*."

Prepositions, too, are a thorn in the flesh. The more common they are, the more trouble they seem to give. The correct translation of French *chez*, German *bei*, Scandinavian *hos*, for example, gives rise to constant blunders. "He is living by my uncle," writes the Dane, who really means "at my uncle's." The idio-

matic uses of certain prepositions in conjunction with verbs like *get*, *make*, *take*, &c., should be given far more attention than appears to be the case at present. Many a foreigner studies English zealously for years without really understanding such idioms as "to take in a person," "he didn't turn up," "to get over an accident," and so forth. In some cases English usage is the exact contrary of that found in many other languages, and to *lock up*, *pack up*, *tie up*, are by no means the simple expressions they may appear to an Englishman.

The Germanic nations find especial difficulties in the order of words. Thus a Norwegian will write : "A for many years successfully carried on large business to be sold," or "Those under heavy layers of peat situated harder rocks."

Many mistakes arise from the fact that certain English conceptions are so very different from those generally accepted on the Continent. The foreigner who arrives in England believing that he has *ten* fingers, is naturally taken aback when he discovers that we consider two of them as thumbs, and that therefore a wedding-ring is worn on the third finger, and not on the fourth. For the musician this difference is often a very serious one, and the whole terminology of music as studied in England is calculated to upset completely whatever previous knowledge a foreigner may possess. The rule of the road, the etiquette of bowing, of introductions, the English use of "you," the calling of numbers on the telephone, these and many other anomalies from the foreigner's point of view, should make us as lenient towards the foreigner's transgressions as most English people undoubtedly are. I once saw a Frenchman wildly rushing up and down in Waterloo Station, searching in vain for the *ticket office*. When he learned that we usually name that institution a *booking office*, he was full of gratitude, although many of us abroad would have asked in indignation why things cannot be called by their proper names. Even the ten commandments are not numbered as they are in some countries.

A Norwegian once asked me whether the members of the "Fast Set" in London really were as addicted to theft as they were said to be in popular fiction. This misconception arose from the fact that in Lutheran communities the *seventh* commandment is the admonition against dishonesty.

Space forbids any detailed observations on the grammatical difficulties, although two instances shall be given. They are taken from a recent text-book (1911) published by a German firm of repute :

"Are there many people in our class?" asks the author.

"No," is the reply; "there are only *some!*"

Proceeding to the "shall and will" difficulty, the writer waxes even more daring:

"If you would be ill, what would you do?" he asks.

We leave the reader to solve this enigma for himself.

THE STATE, THE SCHOOL, AND THE CIVIL SERVICE.

By D. P. COULTON, B.A.

Assistant-master, Queen Elizabeth's Grammar School, Barnet.

MORE than forty years have passed since the State first took in hand the administration of the elementary education of the country, and about ten years since it added to its care that of secondary education. The idea that the State should control the educational system of the country is, comparatively speaking, of recent growth, and the conception has not yet been accepted in its entirety, the universities and a number of other educational establishments still remaining outside the activities of the Board of Education. Yet everything points to the fact that the Board of Education is gradually extending its purview and bringing the working of kindred problems in different departments into relation with each other, as, for instance, the co-operation of the Board of Education with the Board of Trade in dealing with the problem of boy labour.

So far, however, little connection seems to exist between the Board of Education and the Civil Service Commission. Each is governed by different and conflicting ideals—to the detriment of education in general, and State-aided secondary schools in particular. The present article is a plea for a closer connection between these two State departments.

In the "Regulations for Secondary Schools" are summarised the rules that shall govern all such schools as wish to place themselves under the directing authority of the State. Amongst the conditions that the State, through the Board of Education, requires every "efficient school" to fulfil, are, besides certain regulations concerning the health of the pupils, evidence that the curriculum is in accordance with a well-devised plan for *training* the various activities of the pupils. The system of "cramming" for particular examinations is strongly condemned—neither the school curriculum nor the teaching is allowed to be subordinated to it.

Most inspectors, carrying out the spirit of the Board, lay due emphasis on character, influence, method, as well as on the culture

of the teacher. If they ascertain that sound educational principles are not carried out, that the teaching is not of a character to exercise either the mental or physical activities of the pupils passing through the school, and that schemes have not been made out for complete and systematic courses in the various subjects taught, the Board of Education can refuse either to recognise the school as efficient, or to recommend payments of grants. It is significant that the method that it adopts throughout in order to ascertain if the teaching is satisfactory and the education sound is that of inspection and not of examination.

Now how does this action of the State affect the secondary schools of the country? Are they as they should be, in a satisfactory condition? On consulting such evidence as H.M. Inspectors' reports, the Blue Books of the Board of Education, and the recent report of the Consultative Committee on Examinations in Secondary Schools, we find that the majority of scholars leave school before the age of sixteen (63 per cent. boys, 47 per cent. girls, averaging 55 per cent.), which means that the chief advantage to be gained by following a well-devised *course* of instruction is lost to more than one half of those who enter the secondary schools of this country.

It is a melancholy fact that the State itself is directly responsible for a large percentage of this "waste." A large number of posts in the Civil Service are filled almost exclusively by pupils who have left secondary schools in order to be "coached" or "crammed" for the entrance examinations to the Civil Service. In other words, pupils leave the State's secondary schools in order to qualify to pass the State's examinations. For, what are the conditions that the State requires every candidate to fulfil who seeks employment in its service? We know that in the overwhelming number of cases practically nothing is required of the candidates save the ability to pass the examinations imposed. The great employer, the State, ignores all education in its wider meaning, all training, all influence of school upon character—provided the candidate can pass the examination test, all is well.

Thus, through failing to give effective recognition to the value of its own work, the State is unconsciously fostering in the school, on the part of some of the pupils, a spirit of indifference, or of antagonism to school methods and values—a distrust of the ultimate utility of the subject-matter taught—in fact, a whole atmosphere of unreality.

This is especially so in the case of those pupils who—either because they are dull or because they are lazy—require some more tangible and concrete incentive to effort than

the usual schemes of school reward and punishment offer. The very existence of this spirit of scepticism or of good-natured tolerance tends to militate against the success of all those ideals which those most zealous in the cause of education set most store by. Is it astonishing, then, that institutions offering a business-like way to secure in the shortest time posts and careers for its members should successfully compete against secondary schools for their most valuable products? For not only do parents who wish their children to enter the Civil Service withdraw them from the State schools at an early age to be prepared for State examinations, but the example thus set by the State is not slow in being copied by nearly all employers of labour, who also fight shy of candidates fresh from secondary schools and prefer those who have passed through one of the above-mentioned institutions, which advertise themselves as training young people for a "business" life, as well as preparing them for the Civil Service and other examinations.

We thus reach a complete deadlock in educational matters—the State, through the Board of Education, pulling in one direction, and the State, through the Civil Service Commission, pulling in another—educational theory *versus* national practice. The system, as it at present exists, might with far more fitness be attributed to the fertile brain of some busy projector at the Academy of Lagado than be conceived as the outcome of the practical sense of a rational community. The causes that have led to this state of affairs lie in the origin and independent development of the Civil Service Commission and the Board of Education. The remedy appears to be obvious. Let those institutions over which the State has uncontested authority be regulated according to the same ideals as those by which it regulates its secondary schools. Let the Civil Service Commission be brought into closer connection with the Board of Education, and let one of the essential conditions for eligibility to the Civil Service be that the candidate has satisfactorily completed some definite and approved course of instruction in some recognised and efficient centre of learning, either elementary, secondary, technical, or university—according to the grade or division of the Civil Service the candidate wishes to enter.

Such a condition, impossible at the time when the Civil Service Commission was first established, should meet with little opposition now that education is compulsory, the supervision of education a Government policy, and a clear way opened from the elementary school to the university by means of the scholarship

system. This condition would entail also some classification of the posts in the Civil Service open to public competition. Already some such classification exists in the case of clerkships under the Government. All that would be necessary would be that the Civil Service Commissioners and others in authority should draw up a list of all such posts, and classify them according to the kind of education—elementary, secondary, technical, or university—that the candidate should be required to possess. If this were done, it might be possible to bring the entrance age, especially in the case of the junior posts, into greater harmony with the leaving ages of the elementary and secondary schools.

The adoption of the foregoing condition would eliminate a certain number of candidates. In order to equalise still more nearly the supply with the demand, further restrictions are necessary.

A committee of school inspectors, Civil Service Commissioners, and teachers might be formed to decide on the number of nominations to be granted to each school or teaching institution. The number of nominations might depend either on the number of scholars, or on the efficiency of the institution, or on both. A premium would thus be set on efficiency in each school, each school having a number of Civil Service appointments to offer in addition to scholarships.

The final examination need then be merely selective, as the State would thus be sure that the candidates had at least had a course of suitable training and were taken from the most promising scholars in each school.

The necessity for repeated examinations in subjects in which candidates have already acquitted themselves creditably would thus be dispensed with, thereby saving the candidates much time and avoiding a great deal of mental strain. What the final examination should be would be subject to arrangement—at any rate it should provide more largely for oral examination than at present, and should also be conducted on lines that would ensure that the candidate was fitted for the particular post applied for. The general education of the candidate being sound, the test might be practical in its nature and devoted to the essentials required.

By such a reform as that outlined—proceeding along lines already stated, involving no revolutionary changes, no new and expensive organisations, co-ordinating the institutions already existing, and preventing to a large measure over-lapping, pruning away deleterious growths that are recognised at present as necessary evils—we should tend towards a truly national system of education.

The advantages in all directions would be enormous. Pupils would be encouraged to remain at school to complete the full course. At present a large number leave school perhaps without any immediate definite prospect, whereas, under such a scheme, if they did leave the school course uncompleted they would know that at least one career would be debarred from them. There would also no longer be any necessity for pupils to leave in order to increase their chances of passing into the Government service by attending some other institution.

The recognition which the State granted to its educational establishments would be an example to other employers, and business men would not be slow in recognising business methods elsewhere; and business in education is organisation. In thus bringing the school more intimately into connection with the future career of a number of the pupils, there would be an added element of earnestness, of reality—for few can afford to treat lightly matters concerned with their ultimate well-being. The formative elements in the making of character should thus also be strengthened, with advantage to the whole life of the State.

Incidentally, some further steps will have been taken towards securing that further co-ordination between the different activities of the State which is necessary in order to deal with the increasingly complex nature of our modern life. And lastly, the school will be able to take up that position which surely to all thinking persons will appeal as the highest rôle and the fittest, namely, a preparation in its truest sense for the service of the State. Let no confusion arise here as to the meaning of the term—by preparation for the service of the State is not meant that specialisation and “cram” which such preparation at present involves—on the contrary, the new conditions would at the start abolish all such need. The school would be allowed full scope to achieve what has always been its aim—to form worthy citizens for its service ready and prepared to deal with special cases of life as they arise, and from those most apt to render service in this most general sense would be formed the body from which the State would select those most capable of rendering such particular services as it might require. There is no reason why this should not be done, and done now.

Since this article was begun a Royal Commission on the Civil Service has been appointed. Part of its business is to inquire into the whole system of appointments to the Civil Service. It is to be hoped that in taking evidence on the working of the present system there will be no overlooking of its injurious effect on education and of the handicap thereby set on the State-aided schools.

ENTRANCE EXAMINATIONS.¹

I HAVE been asked to introduce at the Conference the discussion on the subject of entrance examinations at the Universities of the Empire, and the arrangements for the mutual recognition of such examinations by University bodies.

We are all, I suppose, agreed that it is desirable to recognise the solidarity of education: “it moves together if it moves at all,” and especially within the countries which make up the British Empire, the practical recognition of this unity is a duty laid on all bodies concerned with higher education. But if unity is a vital principle of our commonwealth of learning, that does not mean uniformity. Variety is one of the “notes” of our political arrangements, and it is no less vital in our educational structure. If hitherto we have perhaps had too little uniformity, we must be careful not to rush into the other extreme, and systematise merely for the sake of system.

These two principles then have to be borne in mind—unity and variety; and these issue in two practical conclusions:

(1) that, so far as possible, the different Universities should accept one another’s testimonies;

(2) that we should recognise diversities of requirement in the different Universities.

Where do we stand at present?

If we start from Great Britain we find that “mutual recognition” has already been widely adopted.

(1) Oxford and Cambridge, London and Birmingham, and the Northern Universities have already, on conditions, arranged that the entrance² examinations, or first University examinations as conducted by any one University or its examining Boards, shall be generally accepted as giving access to the other Universities. The certificates of the Scottish Universities and of the Board of Education for Scotland are similarly accepted at Oxford and Cambridge, and the Scottish Universities, on their part, accept on certain conditions the certificates of English University examining bodies.

Hitherto these arrangements have been made without any sacrifice of the characteristic features of the Universities in question. Broadly, it may be said that there are two types of entrance examination (or first University examination), one requiring a less knowledge of a larger number of subjects,

¹ From a paper read at the Congress of the Universities of the Empire, by Mr. P. E. Matheson, Oxford Secretary of the Oxford and Cambridge Schools Examination Board, to introduce the discussion on “Conditions of Entrance to Universities and the Possibility of Equivalence and Mutual Recognition of Entrance Tests to Degree Courses.”

² Oxford and Cambridge have at present no entrance examination properly so called; but the general practice of the Colleges is not to allow residence until the first University examination has been passed.

among which there is a choice; the other requiring a pass in a smaller number of subjects, all being compulsory. The latter type is that at present in use for Oxford and Cambridge, where Latin, Greek, and elementary mathematics are required of nearly all students for Arts degrees. Account is taken of these differences in the arrangements so far made amongst Universities. There are two changes in regard to these differences which would, no doubt, much simplify entrance at the older Universities in the future—(1) if the requirement of two ancient languages were relaxed, (2) if the requirements of Oxford and Cambridge could be brought more into accord.

But even as it is, the mutual recognition so far achieved has done much to simplify the free movement of students among the Universities of the Empire.

(2) At Oxford and Cambridge arrangements have been made by which (a) students of Colonial and Indian Universities, (b) students of foreign Universities, and (c) graduates of other Universities within the United Kingdom, can obtain certain standing, with exemption from a year of the required period of residence and from certain examinations, in virtue of having already attended specified courses and passed specified examinations at their former Universities. This has been found to work smoothly and well, and will work with increasing smoothness as the standards of the Universities come to be better known.

The corresponding acceptance by Colonial Universities of certificates given by University bodies in England has so far not been very much developed, for obvious reasons.

Recognition has also been given to the "leaving certificates" of the Universities of the German Empire, the Austro-Hungarian Empire, Switzerland, Russia, and to the French Baccalauréat.

What then are the lines of further progress?

There are two possible policies:—

(1) It is suggested that a uniform examination might be established to be used over the Empire.

At first sight this is an attractive proposal, but the objections against it are very serious.

(i) It would tend to enforce greater uniformity than is necessary or desirable.

(ii) In practice it would be very difficult to work. It would mean the addition of one more to the many existing examinations of this standard, and would require either the intervention of an external central authority (*e.g.*, the Board of Education) or the constitution of a representative Board, an elaborate new machinery.

(2) The other policy is to proceed on the existing lines, *i.e.*, to encourage and develop

the principle of mutual recognition, and to make more widely available the existing information as to the conditions of entrance at the Universities of the Empire.

Are there any ways in which the process can be promoted or extended? I should like to suggest:—

I.—That if as an outcome of the Congress an Imperial Universities bureau should be established, it should be one of its main duties to act as (i) a bureau of information for Colonial students, and for English students going to the Colonies.

It may be said that any student can at present inquire freely of any University from which he desires information. This is true, but very often what is desired is "comparative" information, which cannot be effectively supplied except by some central body.

(ii) A means of directing the attention of British and Colonial Universities to any particular difficulties in the way of Colonial students, and to any means devised by any University for dealing with them.

II.—The second suggestion I would make is that the examination qualifying for entrance at a University, *i.e.*, the examination which is to test the general education of a University student, should, in general, be taken not later than seventeen. This suggestion is one which has the support of a large body of educated opinion, and already schools are more and more tending to act on this principle. If once the practice becomes habitual, most boys in the Empire who have had a secondary education will have qualified in a good part, at least, of the requirements of a University entrance examination some time before the school course is over. If they should then decide to go on to a University not in their own country, they would generally have time before completing their school course to prepare for satisfying any special requirement imposed by the University of their choice for the course they have in view, *e.g.*, the Colonial coming to Oxford could fulfil his main requirements at seventeen, and if weak in Greek would have time to work at that before leaving home.

III.—It may be that before many years have passed the Universities here and in the Colonies will find it possible to attach some weight, for the purposes of entrance at a University, to a three-years' attendance at an inspected secondary⁴ school. This in itself would tend to make the movement of students among the Universities of the Empire easier and more free.

IV.—Meanwhile, it must be borne in mind

⁴ "Secondary" is used in its widest sense, including "public schools," grammar schools, and secondary schools receiving grants from the Board of Education.

that in some of the older Universities already there are certain classes of students who are admitted on conditions which, if not easier than, are different from, those of the normal entrance examinations.

Such conditions, which, no doubt, already have, or soon will have, their parallel in other Universities, introduce an element of elasticity into the system which is very desirable.

My suggestions, it will be seen, are not of an elaborate kind; the Universities of the Empire seem to me to be more closely in touch than they have ever been before, and are all sincerely anxious to open their doors to all qualified students. Such free intercourse can do nothing but good, provided that the standards of study are maintained. I believe that by steadily pursuing their present policy of mutual recognition, with the further aid of a bureau of information and communication such as I suggest, the Universities of the Empire will become accessible to all who deserve access to them.

PERSONAL PARAGRAPHS.

MR. CHARLES H. SPENCE, of Clifton College, died unexpectedly from heart failure on July 1st. He was educated at Birkenhead School and at Trinity College, Cambridge, where he took a second class in the Classical Tripos in 1880. At Clifton he was senior House-master and Head of the modern side; in the latter position he succeeded Mr. T. E. Brown in 1892. Mr. Spence was an admirable and inspiring teacher of history and literature; he recently published a small collection of verses and translations.

* * *

MR. JOHN TALBOT, science master at Harrow School, has been appointed headmaster of the Royal Grammar School, Newcastle-on-Tyne. He took first prize at the London Matriculation in 1893, an exhibition in chemistry, and the Neil Arnott Exhibition and prize in physics at the Intermediate; he completed his degree at London in 1899 and at Cambridge (Trinity) a year earlier. At Newcastle, Mr. Talbot succeeds Mr. S. C. Logan, who was appointed in 1883; he also was a Cambridge man; he took the Classical Tripos in 1874.

* * *

A FORMER assistant-master at Westminster School, the Rev. James Marshall, has left to the Society of Schoolmasters £300. Mr. Marshall was at one time a professor at the Royal Military College, Sandhurst, and latterly vicar of Pyrton, in Oxfordshire; he died in May, leaving some £80,000. The Society of Schoolmasters gives assistance to necessitous masters

in any schools not coming under the Elementary Education Act, and to their widows and orphans; masters must have been continuously engaged in teaching for at least five years. It is dependent almost entirely on subscriptions.

* * *

THE future of Derby School is still very uncertain; it is only a few years since Mr. Knight went from the Royal Masonic School at Bushey to succeed Mr. Crawley. Now the Derby Education Committee recommend that the school be amalgamated with the Municipal Secondary School; that the combined school be carried on where Derby School now is, the premises having been enlarged, and that the headmaster should be Mr. W. G. Constable, the present headmaster of the Municipal School; the name of Derby School is to be continued. Mr. Constable was educated at Borough Road, and was a tutor at Borough Road and was for eighteen years headmaster of a higher grade school in Derby, and then of the Municipal Secondary School; he is a graduate in Arts and Science of the University of London. It was also recommended that Mr. Knight should be given a year's salary, £500, in addition to the necessary six months' notice.

* * *

THE first King Edward VII. professor of English Literature at Cambridge, Prof. Arthur Woollgar Verrall, died on June 18th. From Wellington he went up to Trinity College, Cambridge, and graduated in 1873, when he was bracketed second in the Classical Tripos with Mr. T. E. Page, the first man being the late Prof. S. H. Butcher; the three of them were bracketed equal in the competition for the Chancellor's medals, and an extra medal was struck in consequence. Verrall's best-known work has been that on the Greek dramatists; his edition of the "Medea" appeared in 1881, and was followed by others, both of Aeschylus and Euripides. He was chosen to fill the King Edward VII. Chair of English Literature as recently as February, 1911, shortly after the chair had been founded by Sir Harold Harmsworth to promote the study of English literature from the days of Chaucer onwards on "literary and critical rather than on philological and linguistic lines."

* * *

SIR WILLIAM RAMSAY, who has recently resigned the Chair of Chemistry at University College, held appointments at Glasgow University and at University College, Bristol, before he came up to University College, London; at Bristol he was Principal from 1881 to 1887. He is an Officier de la Légion d'Honneur, a corresponding member of the Institute of France, and an honorary member

of the academies and societies of nearly all the European countries, as well as of America. When Sir William Ramsay presented the prize awards at University College, he spoke of the external side of the University, and then went on to say that the greatest progress has been made of late years in physical well-being, but in mental well-being little progress is being made in this country. This need excite no wonder, for those in supreme power are selected, not for their competence to deal with social problems, but for their glibness of tongue. After further remarks upon politicians and the political machine, he impressed upon his hearers that they must try to guide public opinion so that the bulk of the nation may be induced to act, not for the moment, in deference to a popular cry, but with reference, as fully as that is possible, to the result which their action will have upon the future welfare of their race.

* * *

ALL old Caians, and there are many among schoolmasters, have heard with sorrow of the death of the master of Gonville and Caius, the Rev. E. S. Roberts. He was indefatigable in helping his students, giving them patient coaching for hours without remuneration; he kept in touch with a very large number of old members of the College. When the Modern Language Association met in Cambridge, Mr. Roberts was its president; he was keenly interested in the teaching of modern languages, and did much to foster the study of Russian.

* * *

THE Secondary, Technical, and University Teachers' Provident Society is an approved society for the purposes of the Insurance Act. That it is, is due to the efforts of four members of the teaching profession, who have given without stint of their time, their energy, and their ability. They are Mr. Tidswell, formerly of Owen's School, now of Tottenham Grammar School; Mr. Hankin, of King's College School, Wimbledon; Mr. Lunn, formerly second master at Barry, and now science master at Holloway; and Mr. David Jones, of The Addey and Stanhope School. All four hail from different universities, Oxford, Cambridge, Victoria, and Wales respectively.

* * *

CLIFTON has just celebrated its jubilee; since it was founded in 1862 five headmasters have held sway: the Bishop of Hereford, who left in 1878, and became President of Trinity College, Oxford, and afterwards headmaster of Rugby; Canon Wilson, who held office until he went to Manchester in 1890; Canon Glazebrook; Mr. David, now headmaster of Rugby; and Mr. King. All five were present at the

commemoration, which ended with a sermon in the school chapel, preached by Canon Wilson. The other notable feature of the jubilee was the speeches delivered by Lord Haldane and Lord Roberts.

* * *

MISS MINASI has been headmistress of the Highbury and Islington High School for Girls for nearly thirty years, and during that time some seventeen hundred girls have passed through the school. The Girls' Public Day School Trust, to whom the school belongs, has decided to close it, and her past and present pupils and their parents are hoping to present Miss Minasi with a substantial testimonial as a token of their appreciation and regard. Those who desire to contribute should communicate with Mrs. Aitken, 21, Church Row, Hampstead.

ONLOOKER.

ORIGINAL SOURCES IN THE TEACHING OF HISTORY.

TENTATIVE efforts are being made by some teachers to apply to the history work in schools the practical methods which have been introduced with success in mathematical and geographical class-rooms. It is being urged that unless historical exercises of some kind can be provided, which will demand independent thought on the part of the pupil and assist in the development of his self-initiative, history must fail as a school subject, in so far as it is unable to assist what many regard as the main functions of education.

Teachers of history are asking: How far is it practicable to utilise carefully selected "original sources" as material on which to base exercises to be worked by the pupils themselves?

Is it possible for ordinary pupils in schools to arrive at generalisations of value from the study of documents or other available historical material; or, should such "sources" be used merely to illustrate generalisations which pupils have learned from the teacher or from their text-book?

If it is useful to introduce practical work of some kind in history teaching, at what age may pupils profitably begin such study of "sources," and how should the character of the exercises vary from form to form?

We have received the following generous response to an invitation asking for an expression of opinion from a number of well-known teachers of history on these and similar points in connection with the utilisation of original sources in school history. We are glad of this opportunity of publishing repre-

sentative views on what are at present important questions for all engaged in history teaching, and shall welcome further short contributions to the symposium from other history teachers who have experimented in this direction.

THOMAS H. BOWTELL, M.A.,

Second-master, Accrington Secondary School.

I CERTAINLY believe it is possible for ordinary pupils in schools to arrive at generalisations of value from the study of carefully selected extracts from historical documents. To state this, however, is not to minimise or overlook other methods of history teaching. In the class-room it is sometimes found that one method used exclusively is not wholly good, whereas combinations of different methods and their modifications give variety and interest to a study.

The aim of the "inductive method" of teaching history is both positive and negative. In the former case it undoubtedly trains the imagination, the ability to trace cause and effect, and, last but not least, it rouses in the minds of the scholars a critical spirit and the ability to weigh pros and cons. This training, I hold, is essential in these days of newspapers and hasty generalisations. Negatively, this method does much to combat the prevalent notion that history is merely a matter of "memorising," and hence does not put much exertion on the understanding of the pupil.

The use of this method, however, in schools imposes certain limitations, not only in its use in history, but in other subjects as well. To begin with, on what principle are the extracts to be selected? For myself, I accept the generalisations of modern historians as correct, *e.g.*, with respect to the causes of the "struggle between King and Parliament" in the early seventeenth century; then I select extracts which bear on the generalisations which I desire the class to obtain for themselves. In this way, by comparing, contrasting, and weighing the matter contained therein, even the ordinary pupil proves capable of drawing conclusions which, though inadequate, are not inaccurate. Of course, this is not the way in which the science of history has been built up, but the method of the research student and that for the use of immature minds in the class-room differ highly in degree. We ought also to remember that the majority of our pupils are intended for business and other walks of life, and very few for university and research work. Again, the method of carefully selecting material in order to obtain a given conclusion is customarily done in teaching the physical sciences, and hence ought not to be raised as an objection to history teaching.

A few examples will help to make the "inductive" method of teaching history clear. The class was given copies of various extracts: (1) from James I.'s speech to Parliament, 1610, from his speech in the Star Chamber, 1616, and from his "True Law of Free Monarchies"; (2) a somewhat lengthy extract from the "Apology of the House of Commons, 1604." The average age of the class was fourteen years, and

it consisted of both boys and girls. The extracts took about fifteen minutes to read, after which questions were asked and answered. These questions were of different types and degree of difficulty, *e.g.*, leading questions; questions on fact, and others to elucidate the quaintness of the language. This took the whole of one period of forty minutes. The next lesson was spent in (1) revision; (2) notebook work, *e.g.*, précis; and (3) illustrations of the results of the fact that James I.'s theories and those of Parliament differed. These illustrations consisted of short extracts from the cases of Shirley, Goodwin, and Bates, and the petition on the Spanish policy.

A later lesson dealt in a similar way with Cromwell's character, and for this purpose extracts from Clarendon, Milton, Marvell and Cromwell's own letters were read and discussed. I feel sure that in this way the boys and girls were obtaining a training in criticism, which, however inadequate, will prove of use to them in many ways.

Two other examples might be given to show how the "inductive" method lends itself to other uses in history. The sixth form were given tabulated lists bearing on the Industrial Revolution: (1) the population of England and Wales in 1700, 1750, and 1801 chiefly with respect to towns; (2) a tabulated list of the chief English counties in order of importance in the same years (3) tables with reference to the growth of industries, *e.g.*, woollens, cottons, &c. It did not take them long to note that a great change was taking place in England about the middle of the eighteenth century. As this was a small class, as well as senior in the school, I was able to guide their reading in order to strengthen their knowledge of the two main aspects of the industrial revolution. It is advisable also to give the classes a history talk in order to draw together the threads of discussion and systematise the conclusions. This fact, however, merely emphasises my previous contention that to use one method to the exclusion of all others is not good, and it does not in the least detract from the value of the basic "inductive" method.

One of my early difficulties was to get hold of suitable extracts and to a less extent it is so still. At that time I found that much use could be made of a chronological list with fairly full detail to each important event. Suppose the particular list dealt with the reign of James I. The class was then set to carry out the following directions: (1) Place the events under the following topics, (a) King and Parliament, (b) Church and State, (c) foreign policy, (d) exploration and trade, and so on; (2) note carefully the list of events in which King and Parliament are concerned; what proportion does this list bear to the other topics? . . . (7) Why was the marriage of James I.'s daughter popular with Parliament? Can you find another popular incident? What is the proportion of such popular incidents to the whole number of events? What conclusion does this illustrate? (8) At this time, the national revenue was the Sovereign's income, out of which all State expenses had to be met. Can you clearly explain the connection of favourites, revenue, and taxation? Will your conclusion add to the popularity or unpopularity of

favourites? For the most part the work was done orally, as in that way it can be better supervised and guided. The class was certainly interested in what at first sight appeared to be a bald and dry tabulated list. Among other important points, the boys and girls began to realise the complication of causes and intermixture of effects in history. This chiefly came home to most of them by noting how the same fact can be placed under different topics, and thus they began to obtain one principle of differentiating an important fact or event from a less important one.

It is not advisable, in my opinion, to use this inductive method with quite junior forms, for with the lower forms the personality of the teacher of history should be paramount and the story form the basis of teaching. When boys and girls are beginning to "understand" geometry and to work riders, is just about the time to use this method in history teaching. From the age of twelve or thirteen years upwards this method can be used with great advantage, until in the senior form, or forms, it becomes the backbone of the history scheme and all other methods are subsidiary to it. Examinations form one great practical difficulty in the way of its full use in the upper forms, chiefly because examiners appear to require a multitude of facts to be known rather than ability to criticise and trace cause and effect. However, to some extent there seems to be now a tendency in the right direction.

In conclusion, there is no doubt that history can be taught inductively by the use of extracts, statistics, and the like. The training thus obtained adds to the merits of the older systems, the cultivation of the critical attitude, and the knowledge of history as distinct from "memorising facts." The result, too, on written work is particularly good, for essays gain in argumentative force, in appeal to facts, and also in style, due largely to the reading of extracts from documents, which are not only history but literature.

Miss M. O. DAVIS,

History Mistress, Edgbaston High School.

HISTORICAL teaching for children under the ages of thirteen or fourteen years is chiefly concerned with training their imagination and cultivating their sympathies. Incidentally, it is largely an instrument for instruction in reading, writing, and composition. During this period we try to arouse interest and curiosity in the subject, and to impart a store of rudimentary information. Children at first approach the subject with a freshness which may easily grow dull, and at this stage perhaps the best means to retain this freshness is the use of original sources in the form of ballads and pictures. There is a need for many inexpensive collections of historical contemporary ballads, for the labour of selecting, copying, or causing such to be copied, is often too much for the busy teacher; and books which are to be supplementary to text-books must be cheap, if they are to be used in any but the richest schools.

Again, an astonishing degree of intellectual curiosity may be aroused by making children describe contemporary pictures or illustrations of contemporary buildings. Children have an unwearied interest in

detail, and often extract far more from a picture than a grown-up person can. This form of instruction is, however, seldom possible. Only the most expensive text-books have sufficient pictures, and one picture is not really of much use for class work of this description unless it is of large size. A series of such illustrations in cheap book form, after the manner of Miss C. L. Thomson's "Historical Albums," would be very valuable.

With older pupils the character of history teaching must necessarily change. Here there must be a judicious combination of the special period method and the outline method. In a university course the special period is a period which is, or ought to be, studied by the student with reference to original authorities. He is brought into the workshop of the historian, and is given a rough idea of how he uses his tools, and is shown that his labour is even as the tilling of the soil was to Adam.

But it is well to remember that a special period in a school course bears a different meaning from what it does in a university course. Original authorities must necessarily play a subordinate part in school history teaching. Undoubtedly the more the teacher studies them for himself the better; but school life is too short, and the necessary books are too inaccessible to make the study of them in their original form practical for class purposes.

Fortunately, admirable selections from original authorities are being issued by various publishers at prices enabling schools to use them as supplements to the history text-book. It may be convenient to suggest here possible ways of using them. The most elementary task to put these extracts to perform is to illustrate general statements found in the text-book. Extracts may be read aloud to confirm a statement, to bring a character into more vivid relief, or to create an atmosphere. This is especially valuable as a means of training the judgment. Few children, if any, have enough judgment to select for themselves what is important from out of a mass of contemporary detail. The thing impressed upon their unaided minds is nearly sure to be some useless, and often comic, triviality, as, for example, from the story of Livy's account of Hannibal in Italy, almost the only thing that remains with a child is the tale of the bullock who stalked out of the cattle market into a house, and up two pairs of stairs, and then surveyed from the window the crowd that gathered below. Then, apparently "despairing of the Republic," he cast himself from the window.

In a more advanced stage admirable results may be obtained by the use of problems and exercises such as are contained in the "History of England for Schools," by Messrs. Keatinge and Frazer (Black). Children of fifteen and sixteen years of age will readily write dramatic conversations at the shortest notice; higher forms especially like contrasting two expressions of opinion on the same subject. Children, however, are very conservative, and are apt to become restive if this stirring of the intellect is too frequent. Narrative essays and solemn lives of worthies, maps and plans, are looked upon as some of the pleasant prerequisites of history. What is death in this case to

him who corrects is meat and drink to him who writes.

Again, in the upper classes an elementary text-book of civics will be found a valuable aid to rational historical work. If the teacher of history has anything like a grasp of or an interest in modern politics, contrasts between past and present conditions and institutions will often be suggested, and these will stimulate even the dullest pupil and prevent parrot work.

Yet perhaps the most general use to which the average person will put his historical knowledge in after-life is that of understanding historical allusions, and here public opinion tells us history teaching has hitherto often failed, so that much intelligent essay work might be done if passages from well-known authors were given for explanation which required some historical knowledge.

Any of these methods of history teaching will help students to realise that all knowledge is not contained in school text-books, that everything printed is not necessarily of equal importance, and that ability to find information, rather than a good memory, is truly a mark of a scholar.

When all this is said, however, source books must be used with the greatest care, or they will produce superficiality and conceit. School teaching must not pretend to be university teaching—for there are no short cuts to research. History teaching in schools must aim at teaching the pupil to analyse a situation, to pick out its chief factors, to trace its causes and results, and to grasp the personalities of its great men. Research is not for infants in the legal sense of the term. As well, or better, set the kindergarten in the Royal Academy and bid them choose what pictures are to be kept for posterity. In either task mature judgments sometimes go astray.

As to the use of historical relics, history essentially deals with the progress of humanity, and thus with great men. Useless details about archæology must not be dragged in; local history, unless interesting, is better avoided, and old historical remains must not be made into a fetish. Little or nothing is accomplished by leading children round to the birth-places of third-rate worthies. Who has not met depressed bands of children wearily parading local museums inspecting Roman potsherds, which seem to them no more remarkable or interesting than those on their mothers' dust-heaps? The usual result is a feeling of weary contempt for a people who could do no better than this. It is ridiculous to expect a child to reconstruct a vanished civilisation from such things as a man of science constructs a mammoth from one bone. Far more could be done with a good picture of a Roman villa and its inhabitants. In some children this "potsherd" method, or the desire to centre the lesson round some tangible object, merely encourages the superstition that everything old must be valuable and interesting, and in some teachers it leads to pedagogic absurdities. There is a recorded case of an ardent young lady teacher of English literature who, in dire necessity of something concrete to show her class, bottled some

smoke and waved it enthusiastically before her pupils whilst she expounded Shelley's "Cloud." Quite as foolish things are often done by the "realistic" history teacher.

A. JOHNSON EVANS, M.A.

(1) THE classic example of history teaching from original sources—the Old Testament Scriptures—does not encourage a further development of the practice. The nations not so devoted to "the literal word" give a better idea of the history of Israel to their pupils than we, and are able to omit the undesirable stories.

(2) The original sources require not only to be "carefully selected," but to be edited before being put into the hands of the pupils. So far as I have seen, in the source books already published, there is no criticism of the pieces selected, no warning against the bias or inaccuracy of the "source."

(3) "Documents" should be studied, such as Magna Carta, Confirmatio Cartarum, Act of Settlement, &c. Indeed, much haziness would be dissipated if our pupils were taken direct to the text of these instead of having to learn *about* (I mean round about) them as they do now. But "other available historical material" should be used only with the most extreme caution, and that "merely to illustrate" what has been already learned, *e.g.*, a begging letter to the Duke of Newcastle from a would-be-preferred churchman would be as good as a picture of the Duke for such a purpose, but would only bewilder the pupil if put before him or her crudely.

(4) Such "sources" should not be used with pupils under the age of fourteen, with the exception of those of unusual ability or with a very good teacher. Under that age, so far as I can judge nowadays from examination results (though it is contrary to my own experience as a teacher many years ago), youngsters can learn only the surface action, battles, &c., and "sources" illustrative of these are long and uncritical.

(5) After that age (fourteen) "documents" should certainly be used, and the more trustworthy of the other "sources" carefully introduced. The exercises might progress from "What do you learn from this 'source' as to —?" on to "Do you think this is likely to be a fair account? Give reasons." But this later stage will be reached only at the end of the school career.

C. R. L. FLETCHER, M.A.

IN America, I believe, it is quite common for university students to be set down to the study of "original documents" upon a given subject, and to be asked to submit "theses" based upon such study before they have mastered the works of mature historians upon the subject. The results are almost always disastrous, often ridiculous.

If I am right in this, I think it follows that it would be more ridiculous still to put schoolboys upon a similar track. There exists, I believe, a set of volumes on the history of France, consisting largely of excerpts from French chroniclers and original docu-

ments. I do not know whether it is a success in French schools, or if it is even used in them; but I do not gather that it has had much success for English students of French history, who would prefer to use, at a maturer age, the original documents or the whole chronicle for themselves. At the same time, I think a clever schoolboy, especially if endowed with a sense of humour, might, from seventeen or eighteen years upwards, enjoy being set down to read Magna Carta, or some one or two very important documents of that kind, in the original Latin.

GERALD T. HANKIN, M.A.,

Assistant-master, King's College School, Wimbledon.

WHEN Messrs. Keatinge and Frazer's book appeared I at once determined to experiment with it on a small classical form with no examination in front of them. The period to be covered was 1714—present day, in two lessons a week with one preparation. The text-book in use is "Oman's History for Schools," with Gardiner's, or preferably Ramsay Muir's, historical atlas.

To be candid, the trial has not been a great success. The boys, age about fifteen, are distinctly intelligent and hard-working. The lesson takes the form largely of a "seminar," in which everyone takes part and is encouraged to state his opinions freely, providing that he can produce facts in support of his argument. The main difficulty of the source book is that it destroys all balance. One cannot give the facts for both sides in equal detail, and boys get a one-sided view of the situations and movements they are studying. Moreover, they do not get "any forrader." It is impossible to keep a class keen and interested if they do not feel that they are getting through some work.

Frankly, from the point of view of knowledge of history facts, very little progress is possible. If only a small fraction of the questions are attempted, even if these are divided among the class, and the master corrects the exercises at home, and gives the form a *résumé* of the various answers, the general result is a *précis* lesson or an essay lesson rather than a history lesson. No history teacher can afford to give up history time to other subjects. It is his business to get all the time he can and let the headmaster see to it that the apportionment is the best possible in the interests of the boys.

The soundest way to use source books, so far as my experience goes, is to lend them out freely to boys who care to read them. In this way one gets more, not less, history reading done. The difficulty is to get the books returned. Of course, the main characteristic of "Keatinge and Frazer" is the questions at the end, and the mental training given by the effort in answering. Therefore it is not suitable for private reading. But the mental training aimed at is too serious a matter to attempt in two lessons a week. It is, or ought to be, a fundamental part of education. When this fact is realised and a curriculum is laid down with this object definitely in view, I and many another teacher will welcome such books and be ready to employ them joyfully.

Prof. F. J. C. HEARNshaw, M.A., LL.D.,
Professor of Modern History, Armstrong College,
Durham University.

IN my opinion, so-called "original sources" are useful in school teaching of history purely and simply as illustrations. The generalisations of history are based on a much wider number and larger variety of sources than can possibly be collected within the covers of a "source book," and to encourage pupils to play at original research with toy materials is to train them in premature dogmatism and thus to predispose them to become politicians.

It is true that "historical exercises" must be provided if history is to fulfil its full educative function. But the best kind of historical exercises are those which naturally arise whenever history is treated—as it always should be treated—as a series of problems.

JOSHUA HOLDEN, M.A.,

Headmaster, Whitcliffe Mount School, Cleckheaton.

ONE aim of history teaching is to enable a student to realise vividly what was the life of a community, national and local, in previous centuries, and to watch the process, stage by stage, whereby the present has been reached. This cannot be done by dealing in abstractions, whether of text-books or contemporary documents. Documents are obviously needed to supplement the deficiencies of text-books, but "original sources" are illuminating only to minds already trained and informed. Their use as raw material out of which a past age may be reconstructed, or historical generalisations reached, is impossible for children. Preliminary training, therefore, is required if pupils in upper forms are to make an intelligent use of original documents.

I would suggest that in junior forms the best preliminary training may be secured by the study of local history. "Original sources" may be found in every locality, and raw materials for the reconstruction of a past age are visible above ground within a few miles' radius of every school. Let, therefore, one history period a week in junior forms be devoted to the study of local records of the past. Link local geography with local history. For example, let pupils examine old maps of the district; let them hunt out old buildings (with dates and inscriptions), find out when and where local industries arose; compare the conditions under which people worked then with the conditions now; and trace the influence of mechanical inventions on local roads, canals, and railways, as well as on industries. As for contemporary documents, Acts of Parliament dealing with turnpikes, canals, and railways will be interesting even to a junior pupil in those paragraphs that refer to places he has known intimately for years. In this way materials may be collected for a reconstruction of industrial life in the eighteenth and early nineteenth centuries, and the local significance of the Industrial Revolution may be in some measure appreciated.

The above example may not be applicable in many cases. Equally valuable work, however, may

centre round a local church, castle, or mansion, monastic ruin, battlefield, Roman camp, or road. By working from a local centre and striving to re-create the conditions that once prevailed, a child's historical sense may be developed, his perception of the importance of trivial records sharpened, and the use of local documents¹ will help him to appreciate in upper forms the problems presented by more difficult ancient records.

I wish, therefore, to emphasise the advantage of beginning with the most *concrete* "original sources" in the study of history—those nearest the experience of the child in the neighbourhood where he lives.

E. E. KITCHENER, M.A., F.R.Hist.S.,
Assistant-master, Whitgift Grammar School,
Croydon.

THE pedagogic truism that the problem of method is determined by the considerations of aim is particularly applicable to the teaching of history, because history is so vast, so varied, and so complex a matter that unless a clear purpose be kept in view its teaching will soon become barren and distasteful.

Even when the general aims of history as a school subject have been agreed upon, the particular aims, which vary according to the age and capacity of the pupils, must not be forgotten. No teacher will deal with the Norman Conquest from the same point of view to pupils at the age of twelve years and at the age of sixteen.

What should be the particular aims of the history teacher in the junior forms of a secondary school? I take it that such a teacher should aim at giving a graphic presentation of the part of history which is being studied. With young pupils the arousing and the directing of interest in a school subject is an important function, especially so in history, which lends itself so easily to dull and lifeless teaching. Undoubtedly one reason why many English people know so little of their own history, and care so little about it, is because their interest was killed in their early school life. In the presentation of this story of the past, greater prominence should be given to the economic and social, rather than to the political and religious, development of the race. At this stage the teacher can find no use for "original sources" as a school method. Rather he must turn to "hand-work" for his help and guidance.

But when the pupil emerges from the primary forms and enters upon the elements of the higher studies, his critical and logical powers begin to develop at a quicker rate; and though the teacher of history should never forget that "imagination" and "sympathy" are especially within his province to enlarge and train, he should also remember that these powers must be developed in a logical atmosphere. It is at this stage that the original sources are valuable as "helps." But, except for students who are specialising in the humanities, sources can be

useful only as illustrative of the material on which all true history should rest. The exercises set thereon should aim, not at producing a detached critical spirit, but rather at regarding them as material from which fuller information can be obtained. In other words, the sources should be viewed as conclusions, and not as material for the sifting of evidence. The character of the exercises, therefore, will vary from form to form rather in degree than in point of view. As far as my experience goes, it is only in the highest forms of a secondary school that pupils are able to understand the varying importance of testimony and to appreciate the value of evidence.

At present the source-book method cannot be regarded as the one method of teaching history. In fact, history has not yet received its proper recognition in the school curriculum; and until the heresy that anyone can teach history in schools is got rid of, teachers of history have very little opportunity of making those necessary experiments which teachers of modern languages are now encouraged to practise.

I should strongly advise all teachers of history who desire to bring about a better state of things to join the Historical Association, which is doing a valuable work in this direction.

C. H. K. MARTEN, M.A.,
History Master, Eton College.

I HAVE not yet tried using "original sources" as material on which to base exercises worked by the pupils themselves, on the lines suggested, for instance, in Mr. Keatinge's book. But I can quite believe that, occasionally, such exercises would be valuable, though I do not see how a boy, unless he was reading history and nothing else, would have time to arrive at generalisations of value from the study of original documents.

I do not think the study of documents is, by any means, the only method in the teaching of history of developing a boy's self-initiative; essay questions of thirty or forty minutes set in a way that the boy must strike out a line of his own and express his own views, marshal his facts for argument or illustration in a way not previously suggested by the teacher or the text-book, seem to me admirable exercises for the mind; a boy has to learn to think rapidly, to arrange his facts easily, to write tersely and attractively. I do not mean to say that every boy can be taught to do any of these things, but I believe history can be made as effective a vehicle for developing a boy's mind as any other subject.

J. E. MORRIS, M.A., D.Litt.,
Assistant-master, Bedford School.

My answer to your inquiry about the possibility of working at "original sources" with schoolboys is that I cannot see that much good would come from it.

Most teachers in schools have to consider the average boy. History is a compulsory subject in some examinations, and in others is a voluntary subject taken by a good many candidates. Also, it is

¹ Local township records, such as the accounts of constables, overseers, churchwardens, and surveyors of highways, in the eighteenth century, are often still accessible, and provide excellent material for the training of junior forms in the use of "original sources."

but one subject among many, and little time is allotted to it. Where much ground has to be covered it is not wise to add to teachers' labours. If more time and opportunity were given to us I should prefer to teach more European history, not to specialise more on English only. I think that our subject is already too much controlled by specialists, examiners forgetting that the same boys are working hard at other things, languages and mathematics, and that the rival examiners are specialists in their lines.

Where there is no examination immediately in front of a class, "original sources" sounds excellent. But even then only a few of the best boys would profit. Moreover, the books issued from the press are only partially satisfactory. Not one passage from a mediæval chronicler, but five or six passages from as many contemporary chroniclers, would be required for some one disputed point, *e.g.*, the tactics at Bannockburn. Our ancient history colleagues, indeed, have the chance that we long to have; they can teach from Thucydides and Cicero, adding a certain amount of criticism from recent research, *e.g.*, from epigraphy, but they have the luck to deal with short periods. And it is only the boy who is up to scholarship form that can be expected to appreciate the fare provided.

I should like to insist on my main point: the ordinary boys have as much as they can do already, often eight subjects, taught by eight specialists, in view of an examination in which eight specialists set papers, each ready to condemn the school if his own pet questions are not answered to suit him exactly. Add "original sources," and there will be a new terror for us.

Miss R. K. POLKINGHORNE, B.A.,
County Secondary School, Stockwell, S.W.

If history is to take a larger share in the general joy of growing—in the development of the mind of the child—we must avoid, so far as possible, the lecture system of teaching. A means to accomplish this end is the right use of "sources." Children can begin to use "sources" as early as eleven and twelve, and the best introduction to them is through dramatisation.

With children whose average age is eleven to thirteen, the method pursued is as follows: Tell them the outline of some event, and let the children represent the different characters, one child giving the dates and explanations. Now it is clear that the children will not be able to produce immediately an accurate version of the event from our mere telling. They will have to fill in many details; each child has to find something to say, and with her lack of knowledge cannot invent to advantage.

At first they must be allowed to seek the new material required from very simple books (not sources)—Clara Thomson's *History*, C. Yonge's "Cameos from English History," York Powell's *History*. It is better not to have too many copies of the same book—a few copies are valued more, and if a child can only use her copy for a short time she has to *select* carefully, and not copy slavishly. There is little confusion in putting their parts together, as

they know fairly well the order in which they are going to speak; in doing it they learn to put aside irrelevant matter, to fit in the facts obtained from one book with those of another, and to collaborate with and help each other.

They realise, too, how much there is to be learnt before they can make the past their own, and that the personal names in history books represent men and women who really lived, thought, and talked very differently from, and yet very similarly to, the way in which we do. A thrill will run through the form when we can bring to them from some book beyond their reach a long contemporary speech or description. They have been able to find, perhaps, only two or three lines of Urban II.'s speech at Clermont, and will gladly welcome a longer extract; so we arrive at sources. At first we may have to give them hectographed copies of some of the first-hand information they want. These copies they can shorten or make simpler to suit the needs of their story. They advance easily to the use of such books as Froissart's *Chronicles*, though at first they find him very rambling. One ought by degrees to build up a small library for them, but it must be a form-room one. At this stage the original sources are consulted for information—to make their stories more true and vivid. Naturally, if twenty-eight children are at work on such topics as the "Norman Conquest," "Wars with Scotland," "The Hundred Years War," &c., the result must be that full, accurate accounts are produced, partly in narrative form and partly in dramatic. One must vary the length of the subject and the subject itself to suit the age of the children.

Older children will understand better what Acts of Parliament are, and what the different points of view of the members are, if they are allowed to read and make extracts from the real speeches. Take, for example, the Parliament of 1601; after a lesson on monopolies and the Poor Law, the children (age fourteen) were told to give as true a representation as possible of this Parliament. For their preparation they consulted books, made extracts from the real speeches, and cleared up many difficulties. In the third lesson Mr. Hyde produced a profound sensation by reading a list of articles subject to monopolies, Francis Bacon showed he was heart and soul a Court lawyer, Sir Walter Raleigh defended his tin patents, Sir Edward Hobby denounced the salt patents, &c., &c., while many new speakers unknown in past records plunged into the discussion, at last wisely settled by Elizabeth. They found Escott's "Gentlemen of the House of Commons" (Hurst and Blackett, 15s.) an interesting and useful book to consult.

One of the main advantages of using "original documents" may be mentioned here—the language is so much finer than that contained in ordinary school histories.

The form that discussed the question of monopolies is looking eagerly forward to the approaching Hanoverian period, when the problems become closer to those of the present day. Once we have stopped to discuss the question of a minimum wage

and the fine speeches made represent not the study of original documents, but the work and help of fathers and uncles, we are on the eve of stopping for the Insurance Bill. Their enthusiasm is maintained, not through the giving of interesting lessons, but because they can read, and hear read, what was said in the past, and by putting themselves in the place of the old statesmen and warriors rekindle the soul of the past. It is they who make the lessons interesting by bringing their fresh, unprejudiced young minds to bear on the problems of the past, and we can only keep them unprejudiced by not giving them generalisations and not encouraging their making them without sufficient evidence. It is a pity that more room is given in history books to describing men's characters and criticising their policy than to telling us what they did and said.

With regard to allowing children to generalise from the study of documents, I would rarely ask them to do so. Children are as addicted to hasty, thoughtless generalisations as grown-up people. After all, in comparison with the vast number of original documents and sources of various kinds that we have, children consult but few. *They had better use these documents to acquire certain first-hand information about certain events for a special purpose*; this seems a safer statement than to talk about their arriving at generalisations of value from the study of these documents. Once as an introduction to the reign of James I. I read to a form his speech to his first Parliament. At the conclusion, without any questions from me, every hand went up. They all wanted to tell me their impression of James I.—what he was going to be like as a king. I let them, though I warned them they ought to read his reign first before they decided. But James I. had given himself away to them as he probably did to his first Parliament, and, of course, after-events only proved the opinion of the form triumphantly right.

If throughout each form the children are encouraged to bring together from different books facts concerning one event, and to desire first-hand information rather than the bald statements of history books, they will soon possess the power of learning new things for themselves, and perhaps will be able to do in life what is required of them.

One difficulty to be faced (and I have found it a very real one) in allowing children to use original sources, whether for purposes of dramatisation or to work exercises in the manner suggested by Mr. Keatinge in his admirable book, "Studies in the Teaching of History," is that of covering sufficient ground—one tends (perhaps I should say I) to stay too long over certain problems. The difficulty can be got over by careful planning; some part of the history must be taught in the ordinary way, and certain parts only selected for the special method. It is also a good, or rather a safe, plan to take rather less than half the term teaching the main events of the period to be covered, and then the remaining half for letting children work up special parts by means of original documents.

After some years' experience in using the above

methods, I still hesitate to say definitely the results until I can eliminate many more of the mistakes I have made. Yet of two or three things I am convinced.

(1) That there are immense *possibilities* in the right use of "original sources," both in connection with dramatisation and the more scientific exercises, as suggested by Mr. Keatinge.

(2) That children taught in this way will be more independent and critical and have more initiative—in some ways they will be less teachable. I mean they will be more eager to learn for themselves and less willing to be passive listeners. This some may consider a disadvantage.

(3) It is more difficult to keep the form at the same level. You open up undiscovered lands to the clever and the enterprising, and they run ahead without you, while the rest may get hopelessly behind. In other words, the method tends, I find, to develop the individual

GEORGE C. PRINGLE, M.A.,

Rector, the Burgh and County High School,
Peebles.

My general convictions are that such practical methods of teaching history are not strictly analogous to those of mathematics and geography. History as a human science requires an experience of life for its appreciation, and to employ "source" material except in the natural and ordinary way seems to me to be playing at the study of history. By the ordinary and natural way, I mean the working up of an historical subject requiring reference and research on the part of the pupil. If the subject is associated with concrete and simple topics connected with the locality or the boy's interests, so much the better.

But to set abstract problems as one would in mathematics without such connections as I have indicated seems to me to be entirely wrong.

To use sources in illustration of generalisations already arrived at in the text-book is, I think, both right and necessary. Indeed, it is the only way to give reality to the subject. But here again so much depends upon the teacher. If the illustrations are used in a dull matter-of-fact way, the new method may become worse than the old.

As to age, I would not ask pupils to work up a subject in essay form until, speaking generally, they had reached the age of sixteen to eighteen, and would not make use of source material until the age of fifteen or sixteen.

I am more and more convinced that serious historical research is not a school, but a university subject, and to do more than I have roughly indicated with the ordinary pupil would be a mistake.

To my mind it is of far more importance that the pupils should be acquiring a mastery of the instruments of research in the shape of languages, and that teachers should be better trained in the principles of historical study and research. Thus trained, they will not need to worry about artificial problems. Right methods will evolve themselves. Any other plan would be to put the cart before the horse.

By RACHEL R. REID, M.A., D.Lit., F.R.Hist.S.,
Assistant to the Professor of English History,
University College, London.

LET me begin by saying that I entirely agree with the demand for "practical work" in history teaching. Important as history is to our future citizens for the sake of the information it gives, its educational value lies in its "method," and "method" can be learnt only by doing. Therefore, it is not enough for our pupils to learn the story of the past. They must learn how that story has been discovered and written; and since history is not the record so much as the interpretation of past events, they must learn how to interpret for themselves. Yet we must never forget that for the majority of our pupils, the history they learn at school is all they will ever learn, and the imparting of necessary information must not be sacrificed to training in method. In other words, there must be no attempt to teach history from "sources" only; these must be a supplement to, not a substitute for, the text-book and the oral lesson.

As to the use which may be made of "original sources," I am constrained, both as a teacher and as a student of history, to condemn unhesitatingly any attempt to induce schoolboys and schoolgirls to generalise from such documents as can be put into their hands. For if the study of history teaches us anything, it is to suspend judgment, to collect and sift evidence, and to regard all our conclusions as hypotheses; and it would be fatal to encourage in our pupils premature generalisation on inadequate data. Although deprecating any such use of "sources," I would not, however, use them merely as illustrations of generalisations already learnt from the text-book or the teacher. Rather, I would suggest that the study of the "source" should precede the introduction to the generalisations. It would then serve both as a test of ability to interpret a document in the light of knowledge already gained, and as an aid to the interpretation of the generalisations about to be presented. Thus the study of the "source" would be to history what the bit of observation work, the map-reading exercise, even the school journey, are to geography.

"Practical work" in history should not, however, be confined to the study of "original sources," documentary, social, or archæological. The interpretation of "sources," primary or secondary, is not the whole of history. Sources are merely the basis for the discovery of facts, and the facts learnt from them have to be interpreted, their meaning and importance discovered, and the relation between cause and effect made clear. To achieve this the pupil's power of gathering and using information must be trained in order that he may supplement the information derived, it may be, from the study of "sources"; and, above all, his power of judging men's thoughts, feelings, and motives through their actions and words, must be developed. Here there is abundant scope for "practical work"; questions which can be answered *from*, but are not answered *in*, the text-book; questions that can be answered only with the help of several text-books; questions which call for no new

information, but only for the exercise of individual judgment.

In this connection it may be noted that for older pupils there are few exercises more valuable than to attempt to anticipate from the circumstances of a given crisis the action which should have been taken by the statesman then directing affairs, and to compare the course suggested with that actually followed. Another valuable exercise for older pupils is the close study of some episode as treated by a great historian, with the aim of discovering the nature and value of the evidence on which he relies, and the way in which he has reached his conclusions. Especially valuable is it to study in this way the treatment of an episode by two historians using the same sources, but interpreting them under the influence of different temperaments and political or religious convictions.

ARNOLD SMITH, M.A.,

Headmaster, Battersea Polytechnic Secondary School
for Boys.

IN my school a period of one and a half hours is given in a middle form to the use of original sources. The pupils are divided into sets; each set studies four or five books in the course of a term, and writes on certain set subjects connected with their reading. It has been found possible to do this in addition to the usual text-book work in history; it does not take the place of such work.

In a higher form the experiment was tried of allowing each member of the class (which happened to be small) to write on a section of a subject, the essays of the members being afterwards bound together in a file and the matter indexed. Every boy had access to several works and read the contributions of other members of his form. Two and a quarter hours a week were devoted to history in this form and the piece of work mentioned occupied one hour a week for one term.

As far as my own experience goes it is both practicable and profitable to use "original sources," and to give the pupil work in history which requires him to exercise his own judgment. He must select appropriate facts and generalise on his data; this is a valuable exercise. I do not think, however, that work of this nature can take the place of the text-book study of history, not, at any rate, if the pupil's career depends on his passing an examination at the end of his school days. In this, as in many other educational matters, we must effect a compromise.

FRANK SMITH, B.A., B.Sc.

"ORIGINAL SOURCES" in history provide material for exercises which are of very great value to pupils between the ages of ten and fourteen years. (I state these two ages as rough guides only, for mental development does not always follow age very closely.) I want to show that, of the three periods into which I divide school life, the second is the most favourable for such practical work as can be based on original sources, whilst the first and third periods are better served by other methods.

My argument depends chiefly on the psychological development of the pupil. In the first of the three periods, practical work must be as concrete as possible. Things should be more prominent than ideas. The heart is more easily reached than the head. The "aids" which are most suited to the young pupil are pictures, dress, vivid narration, and dramatic expression.

During the second period we find our pupils slowly acquiring the ability to reason in consecutive steps, and to draw simple generalisations from the observation of data. In the science lessons these methods are employed frequently, and, of course, the data are there more easily observed and examined; but the same thing is quite possible in the history lesson. The power of reasoning must be trained to deal with such matters as come into the history lesson, and I have found that "original sources" provide very satisfactory material for it. Mistakes will be made, as is only to be expected, but the value of it all lies not so much in the result as in the process and in the experience. The "why" of a matter is as important a question as the "how," and scholars need practice in the methods we have evolved for meeting the former problem.

By adopting this method, by training pupils to look on history as a series of problems, we are carrying over the method of scientific inquiry into the world of human conduct and human activity. The result to be looked for is a more active mental attitude to life in all its complexities, and a better equipment than the study of inert matter can give.

After the age of fourteen the pupil should be increasingly able to do more or less independent work. He has learnt to form his own opinion, to sum up an argument, to note the possibilities and limitations of a law, &c. Hence he can be turned into the library, and with a minimum of supervision he may be expected to read with judgment, taste, and profit.

F. G. SNOWBALL, M.A., F.R.Hist.S.,
History Master, King Edward VII. School, Lytham.

Two years ago, after a considerable amount of tentative work, I began an experiment, an account of which will, I think, form the best expression of my views on the subject of the possibility and practicability of introducing practical exercises into the history work of a school.

Having found that the average boy of between thirteen and fourteen years of age showed an interest in original sources and possessed fair powers of inference, I decided to attempt to carry on the history work of a form of about that average age without the aid of a text-book.

Instead I provide each boy with a notebook, an exercise book, and a portfolio file, in which to keep the reduplicated sheets which I give out from time to time. These contain a selection from the "raw materials" of history and a number of questions requiring answers, which can be found by a careful and thoughtful study of the text. The raw materials are made up largely of extracts from the original sources, sometimes unconnected, and sometimes ar-

ranged so that the addition of short connective sentences provides a continuous narrative, and partly of maps, pictures, and tabulated statements of facts of various kinds—chronological, archaeological, biographical, philological, and so on. Great care is taken always to provide enough material to avoid the danger of demanding generalisations from insufficient data. Sufficient information about the writers of the extracts is given to enable the pupils to form some opinion of their value as evidence, and more than one account of the same event is often supplied, to provide some practice in reconciling or estimating the value of conflicting statements, and in arriving at the composite accounts to be found in text-books.

This treatment, of course, necessitates the selection of only essential topics for study, to the exclusion of much that is usually found in school history books.

The class work, generally speaking, proceeds as follows. First of all comes an examination of the raw materials, which form the basis of the work. This is followed by an attack on the questions, the answers to which are worried out by the boys themselves. In the process they make constant reference to the text for the collection of specified sets of facts, the drawing of inferences of all sorts, and the examination of the materials from a variety of different points of view, the results being either given orally or recorded in exercise books. This work incidentally ensures the unconscious acquisition of a fairly complete familiarity with the facts. Finally comes a class discussion of the results of the investigation, in which more general questions are asked, involving wider generalisations. As this discussion proceeds, a summary is gradually built up on the blackboard, recording, in a connected form, for entry in the notebooks, the final conclusions obtained by the class.

In both this and the previous stage, failure to find a satisfactory solution of a problem is met by referring the pupils back to the text, if necessary, by reference to some specific passage.

The home work usually consists of written answers to selected questions which it is desirable that every pupil should work out for himself, or, occasionally, of an attempt to foreshadow the results of the class discussion.

Throughout the work loose thinking, guessing, and generalising from insufficient data are severely dealt with, and no generalisations are accepted unless ample grounds are put forward. Mistakes and failures are sufficiently frequent to keep the pupils normally humble-minded and free from that priggishness which educational theorists appear to consider inseparable from the use of the source method.

My reasons for doing this work at this stage are: (1) As the form is doing the first year's work in a four years' course of English history, their period—the Early and Middle Ages—is particularly suitable because the available sources are comparatively manageable in quantity, while the essential topics are limited enough in number to make a fairly full, uniform, and continuous treatment possible.

(2) External examinations are sufficiently far off to cast little shadow over the work.

(3) I feel that if a boy has done about two years of

this sort of work it will be possible, in the later stages, when the multitude of topics and the pressure of examinations make anything like continuous source work impossible, to introduce him to an ordinary text-book with some confidence that he will regard it, not as the last word on the history of his period, but rather as a convenient summary of generally accepted conclusions, some of which he may, and all of which he can, verify for himself by an examination of the original sources.

The idea is that only a few of the topics of first-rate importance can be treated by the source method during these later years, but that the earlier training will ensure the more critical and intelligent use of the text-book, while the occasional study of special topics in the library will give further training on similar lines.

It is, of course, impossible to say what the final result of the experiment will be, but I can safely say that its success, so far as it has gone, has been greatly in excess of the hopes and expectations with which it was started, and gives me increased confidence in the soundness of the method and the value of work of this kind.

MISS A. M. STEPHENSON, M.A.

Headmistress, the High School, Preston.

I FEEL exceedingly doubtful about the advisability of introducing the study of "original documents" for any except quite senior pupils.

I think members of Form VI. certainly, and of Form V. A., if rather above the average in intelligence, may profitably study original sources and be trained to draw their own conclusions therefrom; it should, however, be clearly pointed out to the pupils that their conclusions may be untrue, and why.

I think some excellent practical work may be done by quite young children on the lines indicated in Mr. Hall's "Days before History."

To children between the ages of twelve and fifteen years I have often found it profitable to read extracts from original documents which serve to illustrate and illuminate rather than anything else. For this purpose one naturally chooses letters which throw light on famous characters, ballads, and eyewitnesses' accounts of events such as battles and of social conditions.

Prof. T. F. TOUT, M.A.,

Professor of Mediæval and Modern History, University of Manchester.

I AM sorry I have no time to answer your questions about history teaching and sources fully. I think a certain use of sources is the ideal thing in advanced school work, but I think there is in some quarters a tendency to over-stress their importance. Moreover, I am rather afraid of misleading analogies from other subjects, and am sure you cannot be as "practical" in history as with geometry. The danger is limiting the pupil to a narrow corner of history, whereas what he must have first of all is a wide sweep of general historical movements. When history is

mainly taught by persons really interested in it, I do not despair of the two ideals being combinable; but I must dissent from the view that history is to stand and fall by the test of "practical" methods of so limited a type.

S. E. WINBOLT, M.A.

Assistant-master, Christ's Hospital.

IF I respond to the editors' invitation to express myself on this point, it is by no means because I feel I have reached very definite results, but rather because I am very much interested in groping my way onward. I have been teaching English history (among other subjects) now for eighteen years, for the first eight of them to a modern-side lower fourth and upper fourth, and for the remaining ten to a sixth form (classical). During that time I suppose I have tried most of the usual methods; but by reason of the fact that with none of them could I feel sure of securing enough co-operation from the class (an undue proportion of the work falling on the shoulders of the teacher), I have been gradually but surely, during the last five years, settling down to a more systematic use of sources, as ancillary to the more received methods. I am now so convinced of the efficacy of this method that I am adopting it more completely, even at the risk of covering far less ground.

But books costing 3s. 6d. and covering the whole of English history are not the sort of apparatus I want. I want cheaper books covering shorter periods, the whole being divided into some eighteen or twenty periods, in volumes at about 1s. each. For those who need not study the requirements of outside examinations—and I am at present in that happy position—the problem is comparatively simple. If the inductive use of such material be determined on—and certainly it should be used over some portion, however small, of the period under study—you can confine your efforts to problems provided by one such volume. If your plan is to illustrate on a more extensive scale generalisations learnt from teacher or text-book, possibly the class will be able to afford a second shilling's worth bearing on the period. Even if you are fettered by examinations you will still reap advantage from applying the inductive method to select portions of your period.

I cannot here attempt subtle psychological analysis, but feel sure that first-hand material provides a vivid representation that somebody else's secondhand account can never give: even when read only as illustrative matter, a letter of Chatham's, for instance, must get a firmer grip than a précis of it by, say, Ransome or Tout. Obviously, when used for the working out of exercises, such matter is certain to be more firmly memorised as the result of the pupil's own effort. I do not think that the prescribing of periods by external examinations need really deter any teacher from using source books to a considerable extent.

At present I use sources both for induction and for illustration, and certainly do not think the good text-book can be dispensed with. We want source books

as an extra piece of apparatus. Answers to problems, when corrected, should be kept. If they are written on paper perforated for a paper clip, a pupil's own work can be conveniently kept, and he accumulates in time his own very valuable, because active, contribution to the study of history. If it comes to a question of memorising for examination, there is no doubt as to which will be more surely retained, the analysis made from Gardiner or Ransome or the answers to problems from the source book. The latter undoubtedly gains the firmer lodgment.

I think this source method not really applicable to boys under about sixteen, because the power of making a précis readily and accurately, on which the method largely depends, cannot, as a rule, be reckoned on before that age. The method seems to me to be admirably adapted for boys of about sixteen and upward.

The variety of useful problems that can be set on the right kind of text is very great, but the teacher should have worked them himself if he is to know how long a pupil is to be allowed for them. Here are a few samples: "Annotate this letter of Walpole, explaining all the historical allusions": to be done either with the text-book, or without it after the prescribed pages have been read. "Make a précis of this passage from Goldsmith's 'Vicar of Wakefield' as to the state of the prisons in the latter half of the eighteenth century. What efforts were made to improve these conditions before the end of the century?" "Explain fully the significance of certain phrases in the King's Speech to the Houses of Parliament of January, 1787." "Read carefully the account of the Battle of the Nile given in *The Gentleman's Magazine*, and make a detailed plan of the battle": and so on.

The right kind of matter must be carefully selected. It should mostly be capable of furnishing some sort of problem or exercise. Beyond that, it should be stimulating in itself, chiefly through liveliness of style either by way of a strong personal impress, descriptive or rhetorical power, or even strong partisanship. Whether they give the truth or not, the passages should supply data for inference. Letters, speeches, diaries, and newspaper accounts are, therefore, excellent material. In cases where facts are fewer, and the matter less closely packed, e.g., in ballads, sources are better adapted for illustration.

But, valuable as the process of induction is, I would not have underrated the value of illustration, as cumulatively creating an atmosphere. The pupil may not bring away accurate dates and detailed facts, but he will have acquired a very useful kind of instinct, which will at any rate have the negative value of preventing his making bad mistakes.

At any rate, the historian trained on sources in both ways will make a better politician than the student trained solely on text-book and analysis, for he will be far more competent to examine fresh political phenomena. He will come nearer to the kind of historian-politician Lord Morley seemed to have in his mind when speaking recently at Manchester. "According to some scientific historians with a right to speak, history does not solve ques-

tions: it teaches us to examine. After a life of labour in examination, a great event, they say, is seldom fully understood by those who worked for it. Our vision is surer about the past: there we have the whole; we see the beginning and the end: we distinguish essential from accessory."

THE IMPERIAL CONFERENCE OF TEACHERS' ASSOCIATIONS.

AMONG the many interesting things in this noteworthy conference, a few may be said to stand out as being perhaps special; and instead of giving an account of what occurred from hour to hour, it will be best to emphasise some salient remarks and speeches.

Naturally, the link or the gap between secondary and primary education was noted, and some divergence of opinion made itself felt. Mr. Blair made the astonishing statement that not 2,000 children in the elementary schools of London were fit to profit by a secondary education. The hope that the schools were drawing nearer to one another was traversed by Mr. W. Bently, who, speaking for the N.U.T., declared that the gulf was widening and deepening; and the high-master of Manchester Grammar School piously looked for a colonial Moses to lead us all into the promised land. Has it occurred, we wonder, to these speakers that the educational ladder (so many of the rungs of which are missing) can never be a means for young ambition until the teachers themselves are fully consulted in the choice of candidates for advancement? The failure of the ladder is partly due to our blind trust in paper examinations.

The session on the training of teachers was remarkable for a most spirited defence of the non-collegiate teacher, who, though technically untrained, was, in the opinion of more than one, better prepared for his work than the college-manufactured article. A request for a general world-certificate met with a lukewarm response, and though a resolution was passed, it seemed premature to demand so much from the various authorities; but Dr. Hughes, of Ontario, captured the meeting with his manner if not with his matter.

Most interesting material was supplied from overseas in the section on pronunciation of English, and particularly in South Africa teachers seemed to be aware of their own deficiencies and to be on the way to removing the same.

The geographical and historical sections were well attended, but the matter was not very new, though Prof. Lyde threw all his well-known energy and charm into his own subject; but in the other sections two speeches call for the closest attention. The first was Dr. Gilbert Murray's defence of Greek—a most delicately worded encouragement to a forlorn hope. The charm of Greek was not dwelt on, but the claims of Greek as one of the best agents for a liberal education were placed high indeed. Dr. Murray, in effect, said Greek was dead, but with patience, infinite tact, and good teaching it would be possible to raise it to life. Greek had done so much for us,

could do so much, that it was no time for despair. The professor did not seem to say, though others did, that we should go on teaching Greek to those who asked for it, and then "a time would come."

The other speech, on much the same lines, was an unprepared address by Sir Gilbert Parker, who took advantage of Mr. A. C. Benson's absence and gave the conference unpremeditated views on the teaching of English literature. He recalled how he, when a youth, had almost been frightened from literature by an examiner who gave him 48 per cent. in a paper. With this as his text, Sir Gilbert inveighed against the folly of not finding out in some way or other what children liked and thought about the books they read. Better admire "The Old Armchair" than admire nothing, and better like a music-hall song than like no music at all. Wide reading and few examinations, enthusiasm, and not second-hand criticism, were to be desired.

Both Sir Gilbert Parker's address and Dr. Murray's were, of course, pleas for the fine aristocratic education which is now in the shade; and it was delightful to find that the democratic ideal demands, and will continue to demand, the aristocratic spirit. Of all our aristocratic democrats, Mr. Wells, perhaps, is the most convinced, and in his "New Macchiavelli" he shows the true democratic need.

We do not think that the Caxton Hall, which is acoustically bad, is so constructed that political ladies cannot make themselves heard in every corner of it. It would be easy to improve the acoustics of the room, which is small; but it is not easy to improve the speaking powers of educational conferences. Surely at no other congresses are speakers, on the whole, so unable to make themselves audible a few yards away from the platform. *Quis custodiet custodes?*

Mrs. Ord Marshall, the enthusiastic secretary of the League of the Empire, received the thanks so fully deserved.

EDUCATION AT THE DUNDEE MEETING OF THE BRITISH ASSOCIATION.

THIS year's meeting of the British Association opens at Dundee on September 4th. In the Education Section, the president, Prof. J. Adams, has selected for his subject "The Possibility of Objective Standards in Education." His aim is to estimate how far education has progressed on its way to be a science, and, with this in view, he proposes to examine the various developments of experimental work in psychology and pedagogy.

In the section itself, the papers and discussions will centre chiefly in the subjects which for some years past have been arousing popular interest. Thus, the chief matters already down for consideration are Vocational Training, the Present Position of Mathematical Teaching, the Psychological Processes involved in learning to Read, Write, and Spell, with special reference to their practical bearings, and the Scotch Education Department.

In the discussion on vocational training, Miss Faithfull, of the Cheltenham Ladies' College; Miss Burstall, of the Manchester High School; Mr. J. L. Holland, director of education to the Northamptonshire County Council; Mr. J. W. Peck, clerk to the Edinburgh School Board; and Dr. Morgan, president of the Educational Institute of Scotland, have promised to take part.

The discussion on the present position of mathematical teaching is particularly opportune, as it was Prof. Perry's paper on the teaching of mathematics, read at the Glasgow meeting of the association, that was responsible for many of the recent developments that have been keenly criticised. Among those who have promised to take part are Sir Oliver Lodge, Prof. Perry, Dr. T. P. Nunn, Dr. Pinkerton, Mr. W. P. Milne, and Mr. Eggar.

The discussion on the psychological processes involved in learning to read, write, and to spell has been organised by the Sectional Committee on Mental and Physical Factors involved in Education. Papers will be read by Miss Foxley, Prof. Green, Dr. Rusk, Mr. F. Smith, and Mr. Dumville, and it is hoped that Dr. C. S. Myers, Mr. Bompas Smith, Dr. Rivers, Mr. W. McDougall, Dr. W. Brown, and others will attend and take part in the discussion.

The discussion on the Scotch Education Department is to be opened by Principal Donaldson. Mr. J. Strong will deal with the Scotch Leaving Certificate.

The reports to be presented to the section deal with the question of Overlapping between School and University, the Relation of School Books to Eyesight, and Tests for Mental Defect.

IRISH INTERMEDIATE EXAMINATIONS, 1913.

THE intermediate rules and programme for 1913 were very late in appearing this year, and, in fact, were only published on July 4th, after the midsummer vacation of intermediate schools had commenced. It seems useless to protest against the inconvenience this causes to the schools, as in recent years it has been of frequent occurrence, but their view is that the rules and programme should certainly be issued between Easter and Whitsuntide. It is impossible when the regular time for commencing the holidays has come to keep the staff on, waiting for the unknown and uncertain date when the Intermediate Board's pamphlet will be forthcoming, and yet there ought to be opportunities for the head and the staff to consider and discuss it in preparation for the next year's work. The outstanding feature of the new rules is the abolition of the preparatory grade, and the delay in publishing the rules was occasioned by a discussion of the possibility of making a grant to schools on pupils of the preparatory-grade age without any examination; this has, however, been decided in the negative.

The abolition of the preparatory grade is a reversion to the original condition of things, the Act of Parliament of 1878 having established only the other three grades—junior, middle, and senior. Sundry

other changes naturally follow. There is no prescribed programme for pupils of thirteen years of age, the schools now having freedom to draw up their own courses. Pupils will not be admitted to the Intermediate Examinations under fourteen years of age.

We have noted also the following alterations. Girls in the junior grade can pass in mathematics in one subject only, viz., arithmetic with algebra, or geometry. The rules for exhibitions and prizes are again altered, and will be given on the marks obtained in English and two (not four) honour subjects; in the middle and senior grades in the mathematical group geometry and trigonometry are combined as a single subject; and in Greek and Latin, as well as in mathematics, all honour marks over 80 will be counted for prizes and exhibitions, the limit in other subjects being 100. Students to win prizes and exhibitions need not pass with honours in more than two subjects, and the total number of marks requisite for these distinctions are halved throughout. The school roll is to date from October 1st, not the 15th, and must be sent in by October 15th, not November 1st. The attendance book need not be completed by 12 o'clock, but must be completed by the end of attendance on each day, and attendance means being present for not less than three hours under instruction in some of the subjects of the Board's programme. The Board may accept a smaller number of attendances than 100 for the year in case of an epidemic. The paragraphs about a normal school grant and a bonus school grant, which have never been operative, disappear. The rules about choirs and orchestras are re-worded. The school year is from October 1st (not October 15th) to June 1st.

Turning to the programme, we find that in all modern language papers, and not merely honours papers, of the middle and senior grades, questions may be set in the language examined in. The principal change is in connection with the languages in the middle and senior grades. Set books are re-introduced in the Greek and Latin pass courses, but abolished for the middle grade honours course in all languages. The classical history courses are changed, and literature is introduced in the middle grade. In the senior grade honours geometry there is an addition of "the analytical geometry of the straight line and circle treated with reference to rectangular axes."

The Commissioners have tried their hands again at remodelling the English courses. In the junior grade the literature is made up of selections from ten authors, ranging from Mangan to Hawthorne, and in the middle from eight authors, ranging from Shakespeare (Julius Cæsar: philological questions will not be asked!) to Hazlitt. The objection to a composite selection of this kind is that as pupils cannot be asked to buy the works of eight or ten different writers, Irish publishers will spend the two months of the summer vacation in bringing out junior and middle grade English books, hastily edited and not always well printed, to contain the various selected works. There are also some French authors prescribed whose works have not been set before. And there are some changes in the history and historical geography, mainly in dates.

PENSIONS FOR TEACHERS.

A DEPARTMENTAL COMMITTEE has been appointed to inquire into certain questions connected with the proposed amendment of the Elementary School Teachers' (Superannuation) Act and into the establishment of a system of superannuation for teachers in schools and institutions in receipt of grants other than elementary schools, universities, and university colleges. The members of the committee are the Hon. E. S. Montague (chairman), Lord Farrer, Mr. FitzHerbert Wright, Sir Thomas Heath (assistant secretary to the Treasury), Mr. Orange (accountant-general to the Board of Education), with Mr. Sheppard as secretary. So far as the amendment of the Act is concerned, the committee is to consider and report upon the methods by which the system of superannuation of elementary-school teachers might be improved without incurring an expenditure from public funds in excess of a perpetual annuity of £200,000 accruing from April 1st, 1912.

The clauses in the terms of reference that relate to a scheme for secondary-school teachers are as follows:

To consider and report upon the best system by which provision can be made for the superannuation of teachers in secondary and technical schools and institutions, schools of art, colleges and schools for the training of teachers, pupil-teacher centres, and other schools and institutions (not being universities or university colleges) which are aided by grants from the Board of Education, and upon its cost both immediate and ultimate.

The system should be confined to teachers who are in full-time employment; it should be optional for teachers at present serving, and compulsory for those who begin service in future. The benefits should include allowances payable on retirement at suitable ages with or without allowances payable alternatively on disablement, and the basis of the system should be the payment of suitable contributions by the teachers themselves supplemented by State assistance approximately equivalent to, though not necessarily the same as, that given to elementary-school teachers.

The committee should, in particular, report upon the nature and length of the service which should be recorded as qualifying for pension; the employment which should be regarded as full-time employment; the extent to which, and the conditions under which, service already rendered can be taken into account in fixing the allowances received on retirement by teachers now in service; and the conditions under which a pension should be obtainable by service rendered partly in elementary schools and partly in secondary or other grant-aided schools and institutions.

Voyage à Amiens et Paris. By H. M. Peake and C. Ledez. 16 pp. (J. Baker, Clifton.) 6d. net.—Three little scenes, covering in all about seven small pages, with two pages of directions for costumes and scenery. A good deal of the text consists of stage directions, unfortunately in English. The authors might well have given us more for our sixpence.

HISTORY AND CURRENT EVENTS.

THE unrest in the labour world, which has shown itself acutely during the last twelve months, and of which we have not seen the end, is a phenomenon of which the future historian will surely take count. He will be able to take a wider view of it than we who are in the midst of the struggle, to see the causes and the consequences. The latter we cannot know, nor is there any blame to us for that—no one can forecast anything but the most immediate future except the astronomers—but ought we not to have seen something of the causes? We have examples enough in history for our warning. The movement typified by Wiclif's activity led to the "Peasants' Revolt" and the gradual passing away of villeinage; the "Reformation," of which Luther was the voice, led to similar movements in Germany; the selfish politics of the eighteenth century and the unbelief expressed through Voltaire led inevitably to the French Revolution. Might we not have expected that the scientific advances of the nineteenth century would bring a need for readjustment in our economic system? But "they knew not . . . till the flood came."

THE war between Italy and Turkey—between Europe and Asia—between Rome and Carthage—between West and East—how many parallels does it not suggest?—this war still continues, and after the burst of indignation against Italy that echoed through Europe last year, our Italian friends have felt it necessary to offer a justification. It is just over fifty years ago that Italy was born from the enthusiasm of Mazzini, the energy of Garibaldi, and the statesmanship of Cavour (to name no other heroes of the Risorgimento), and there were some who for years maintained, and apparently with truth, that there was no birth, that the crown of Victor Emmanuel typified merely an unwilling union of peoples, who looked back at times regretfully to "Bomba" and their other Austrian and Papal "tyrants," that the so-called birth was merely an abortion. But Italians now tell us that, even if true, that is no longer the real condition of things, that Italy is a nation, and is, like the infant Hercules, strangling its serpents, finding room to breathe.

WHY is it that nations always notify their birth by entering into war? Sometimes it is evident that such action is necessary if the nation is to obtain the conditions of existence. The early confederations which have grown into the republic of Switzerland are a well-known illustration of this axiom. Perhaps, if we knew all the truth, it is always so. Even Christianity, regarded as a State—and we in Europe have known it almost always in that aspect—is no exception to the rule, in spite of the fact that, according to the reported words of its Founder, that "kingdom is not of this world, else would its servants fight." He said also, "I come to bring war, not peace, into the world," and the history of the Church has abundantly justified that saying. Did not the Christendom of the growing Papacy throw itself in impotent fury on the "infidels" who had "defiled"

the holy places, and, we may add, interfered with the course of Christian, *i.e.*, of European, commerce? Is not the history of Christian Spain one long course of going forth to conquer? Will it always be so, or will there ever come a day when a new State shall signify its existence in other ways?

WHAT is marriage? Is it a sacrament, or at least something that needs the sanction of a church, in whatever sense we take the word "church," or is it a civil contract, like that for the building of a house or the purchase of a piece of land, or is it both? How is the question affected if the church, or a church, is established, and does the answer to it differ according to the nature of the conditions described by the word "established"? Such are some of the questions which need answering if we are to have a reasoned opinion on the Papal decree "Ne Temere," which is creating such stir in Canada and other countries where Roman Catholics are not the only population, and on such urgent matters on which the rules of the Church of England differ from those of the State of Great-Britain-and-Ireland. Down to the Reformation there was no such question. Even Henry VIII. substituted only one ecclesiastical authority for another when he wanted to get rid of Catherine of Aragon and Protestant divines were asked to approve of Philip of Hesse's bigamy. Since then some States, *e.g.*, England and Belgium, have made "civil marriage" legal, and now again, as in the eleventh and twelfth centuries, there is a conflict of jurisdiction between Church and State. Then it was over "criminous clerks," now it is over marriages.

ITEMS OF INTEREST.

GENERAL.

THE President of the Board of Education has made the following additional appointments of members of the Standing Committee of Advice for Education in Art: Sir Swire Smith and Mr. C. Stephenson, principal of the City of Bradford School of Art.

THE Board of Education announces that it is proposed to pay an additional grant of £1 a head on pupils between fifteen and eighteen years of age in all secondary schools eligible for grant under Article 36 (b), and offering 25 per cent. of free places under Article 20. It is hoped that this grant will strengthen the hands of school authorities, in their efforts to increase the length of school life, which still continues to be far from satisfactory, and will at the same time afford assistance to those schools which are in fact doing something substantial for the education of intending teachers. In the case of small schools it is proposed in lieu of the new additional grant to raise to £300 the fixed grant of £250 now payable at the discretion of the Board under Article 40. Some special increment in the grant to small schools has appeared to the Board to be desirable, on the grounds that such schools are relatively more expensive to maintain, and that a fixed increment is fairer in their case than one based on the

necessarily small number of pupils between the ages of fifteen and eighteen. Subject to these changes the regulations for secondary schools in England remain unchanged for the coming school year.

THE Congress of the Universities of the Empire, held in London from July 2nd to July 5th, was a great success. Fifty-three of the fifty-four universities of the Empire were represented, fourteen of them by their executive heads. Socially, everything possible was done to make the gathering notable, and the welcome offered by the Government, in inviting the delegates to lunch at the Savoy Hotel, was greatly appreciated. The reception of the delegates by Prince Arthur of Connaught, in the Marble Hall of the University of London, in the presence of upwards of 2,000 visitors, mostly in academic robes, will be long remembered. The congress cannot fail to give a great impetus to the development of university education in all parts of the Empire.

THE formal meetings of the congress were business-like and helpful. Subjects of real importance were discussed and decisions arrived at which are bound to have good results. The discourses delivered by the various University Chancellors, who presided over the six sessions of the congress, were worthy of the occasion, which is what everyone expected from Chancellors of the distinction of Lord Rosebery, Lord Curzon, Mr. Balfour, Lord Rayleigh, Lord Haldane, and Lord Strathcona, to name them in their order of occupying the chair. A full report of the congress, containing, in addition to the papers read, all the speeches made, will be published in the autumn.

AN extraordinary general meeting of the Association of Assistant-mistresses was held on June 22nd. The president, Miss Drummond, in her address, reviewed the work accomplished during the year, especially in connection with the Registration Council and pensions for teachers. A resolution was adopted, "That this association recommends that in the interests of the profession no assistant-mistress should apply for a post as head-mistress where the salary offered amounts to less than £250." Miss Rogers read a paper on the teaching of geography.

THE Senate of the University of London has established an examination for a certificate in French and for a certificate in German. A certificate will not be awarded unless the candidate gives evidence of an adequate colloquial command of the language offered. The first examination will be held early in August, 1913; forms of entry may be obtained after May 2nd, and not later than June 20th, 1913; they must be sent to the Registrar on or before July 4th, 1913. The examinations are intended primarily for teachers who are not specialists in the language, but who require a certificate testifying to their practical working knowledge of the language. It is not intended that the certificate shall be regarded as a certificate of ability to teach, and a teacher who enters for the examination should normally have undergone a recognised course of training for the profession of teacher. The certificate is intended to testify that the knowledge of the language to which it refers includes

those elements, such as conversational facility and a sufficient acquaintance with phonetics, which have special value for teaching and may not be guaranteed by the teacher's other certificates. The examination will be both written and oral, and the written examination will be conducted by means of printed papers. The examination will consist of: (1) an essay in English—two hours; (2) an essay in the foreign language—two hours; (3) translation from English—one hour and a half; (4) translation into English—one hour and a half; (5) dictation—half an hour; (6) phonetics—two hours; (7) an oral examination—half an hour. All communications concerning this examination should be addressed to The Registrar, University Extension Board, University of London, South Kensington, London, S.W.

THE Local Examinations and Lectures Syndicate of the University of Cambridge has issued regulations for examinations for certificates of proficiency in modern languages. The examinations will be held in June, 1913, and following years, at the Cambridge and the London (City) centres for the Higher Local examination, and will be open to persons who have completed the age of twenty years on June 1st of the year of examination. The certificates of proficiency in French and German are designed for teachers who desire a satisfactory proof of their practical knowledge of the languages with the view of teaching them in English schools. The subjects of examination will be: (i) written: (a) translation from French or German into English—two hours; (b) translation from English into French or German—two hours; (c) French or German essay—two hours; (d) English essay—two hours; (e) French or German phonetics—one and a half hours; (ii) oral: dictation—half an hour; reading and conversation—half an hour. The local secretaries are: Cambridge: Miss M. N. Keynes, 6, Harvey Road, Cambridge; and London (City): Miss M. Shaxby, 45, Mall Chambers, Kensington, W., to whom applications for information may be sent.

PROF. RIPPMANN 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 12th and 26th, November 9th and 23rd, and December 7th, 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 Prof. Rippmann (at 45, Ladbroke Grove, London, W.).

THE proprietors of *The Bioscope*, the trade journal of the cinematograph industry, at the request of the members of the London County Council, arranged a demonstration of the possibilities of the cinematograph in education at the County Hall on July 25th.

The films shown were selected with a view of illustrating the subjects which could be helped educationally by the kinematograph. Among school subjects dealt with were geography, history, and nature-study. Films dealing with the details of various industries and with the subject of physical culture were also shown.

THE series of lecture demonstrations of the Jaques-Dalcroze Rhythmic Gymnastics arranged for last March (see vol. xiv., p. 71), and postponed owing to the coal strike, will be given next November. Full particulars may be obtained from Mr. P. B. Ingham, Merchant Taylors' School, London.

IN the June issue of *School Science and Mathematics* (vol. xii., No. 6) several articles appear which deserve attention. In "Constructive Suggestions for High School Mathematics," Prof. Whitney appeals for a more practical treatment of the subject. The concluding portion of Mr. Jameson's contributions on "The Opportunity before Teachers of Physics," gives useful suggestions for several simple experiments in applied mechanics. A mechanical model to illustrate the action of an electric condenser, a simple form of Attwood machine, and the use of spectacle lenses are the subjects of other interesting articles which appear in the same number. The "Problem Department" continues to offer useful problems, with their solution, in mathematics and in science.

SCOTTISH.

At the annual meeting of the Scottish School Boards' Association, the Rev. Dr. Smith, president, condemned the junior student system that has taken the place of the old pupil-teacher system. The latter system was condemned because it did not afford sufficient facilities for a sound secondary-school education, and because it segregated into a separate caste at too young an age those preparing for the teaching profession. The new junior student course in many instances fails in the same respects. The junior student has to take up so many different subjects, often twelve and thirteen, that any real educational advance is impossible. This course, too, differs so materially from that for the ordinary secondary-school pupil that they have to be taught as a class apart quite as much as in the old pupil-teacher centres. He advocated abolishing the whole system and opening the gate of the training college to all who obtained the group leaving certificate.

It may be questioned whether the time is ripe for the step advocated by Dr. Smith. The Department must first be satisfied that the practical teaching experience of early years is not a necessary part of the average teacher's equipment. It must be sure that the injunction, "learn young, learn fair," does not apply to the teaching profession as to other callings, and, above all, it must be quite certain that it will be assured of the requisite supply of teachers before it consents to defer so late its selection of them. In any case, it would be much better, as a first step, to give greater freedom of curriculum to the junior student, and so enable him to take his place among the secondary-school pupils preparing for other call-

ings. In this way he would grow up in the social companionship of his fellows, working and competing with them on equal terms and sharing with them the common life and interests of the school.

At a meeting of Glasgow University Court, Sir Donald MacAlister reported that a sum of £20,000 had been secured for the foundation of a new chair in Scottish history and literature. The approval of the Privy Council had been obtained, and it was agreed to draft an ordinance in regular form for the purpose. At the same meeting the following regulations in regard to the Bursary examinations were approved: the subjects of examination shall be (a) English and history; (b) Latin, Greek, French, German, and Celtic; (c) mathematics, natural philosophy (in any two of the four departments, dynamics, heat, electricity and optics), chemistry, botany (flowering plants), geography. Each candidate may select four subjects, but at least one subject must be taken from group (b) and one from group (c).

At a meeting of the Governors of the West of Scotland Agricultural College, a letter was read from Sir John Struthers intimating the transference of certain functions connected with agricultural education to the recently constituted Board of Agriculture for Scotland. The chairman expressed their appreciation of the support given to the college by the Education Department, and the secretary was instructed to write to Sir John Struthers conveying to him their hearty thanks for his advice and guidance in the past. On the question of the proposed new Agricultural College coming before the meeting, a letter was read from the new authority refusing its sanction to the building scheme submitted by the Governors. This action on the part of the Board of Agriculture came in for very severe criticism, several members protesting against the rebuff administered to the Governors. The feeling seemed to be that the new body was going to chastise them with scorpions where the Education Department had been content with whips.

COMMEMORATION DAY, which Glasgow University every second year solemnly sets apart in memory of her distinguished sons who have in the past advanced her fame or increased her usefulness, was this year devoted to Sir Joseph Dalton Hooker, the famous botanist. Prof. Bowers, the Regius professor of botany, delivered the oration. Although he was not able to claim Hooker as a Glasgow-born man, he could at least say that in their city he had spent the most impressionable years of his life. After giving a fascinating portrait of the many-sided interests of the great botanist, Prof. Bowers recalled the scene at the jubilee celebrations of 1901, when Hooker was present as one of a famous group of three—Kelvin and Lister being the others—"each of whom was credited throughout the world as indisputably foremost in his own branch of learning."

THE Education Department has issued a new minute amending the former scheme for allocating the Education (Scotland) Fund among the various secondary school-committees. The basis of distribu-

ting is partly valuation and partly population, but special provision is made for meeting the educational necessities of poor and sparsely populated counties, such as Argyll, Inverness, and Ross. In educational circles the scheme has been received with very general approval; but some of the authorities adversely affected by the new scheme are up in arms against it, and will probably force a division in the House of Commons on the matter. We hope they will not succeed, as the scheme is a great improvement on the present, and does substantial justice to all interests.

At the last meeting of the Glasgow School Board it was resolved to proceed with the erection of an open-air school for physically and mentally defective children. Open-air schools have, it is said, justified their existence in England, Germany, and other countries, and the Glasgow School Board had all the facts before them when they approved of the new departure. It remains to be seen, however, whether a scheme that has worked well in countries with comparatively dry climates will prove equally successful in Scotland, and especially the West of Scotland, with its fogs, mists, and rains. Nothing but experiment can settle this question; but, in the interests of the children, it is hoped that the experiment will be carefully watched and brought to a speedy close if any evil effects are noted.

It would seem that the "religious question" which has so long vexed the educational waters in other lands is now going to make its appearance in Scotland. The nation has been so predominantly Presbyterian that the religious instruction in practically all the public schools has assumed the Presbyterian form. The other sects were in too great a minority to make any effective protest. But of late years a marked increase has taken place in the Roman Catholic population in populous centres, and a demand has arisen that those of that persuasion should be admitted to some of the privileges of those of the prevailing creed. At a meeting of Glasgow School Board a heated discussion arose over a proposal to appoint a Catholic teacher in one of the public schools. The minority contended that such a teacher could not give religious instruction according to the prescribed syllabus, and could not teach history without showing bias in favour of Roman Catholicism. The proposal was carried by a narrow majority, but members are certain to hear much more of it before the next election comes round. In Motherwell a somewhat similar case arose. A lady teacher in one of the public schools joined the Roman Catholic Church, and the Board dismissed her on the ground that she was thereby unfitted for performing certain of her duties. The lady appealed, under the terms of the Education (Scotland) Act of 1905, to the Education Department, which is empowered, in the event of the dismissal of a teacher without due warrant, to grant such teacher a sum of money not exceeding one year's salary as compensation. The Department's decision is awaited with intense interest. Whichever way it goes, it is likely in Scotland "to light a fire" of bigotry and sectarianism "which will not readily be put out."

IRISH.

At the beginning of July Trinity College celebrated the bicentenary of its medical school. The University and the town united in welcoming the guests who came to celebrate the occasion from all parts of the world, and many of whom received honorary degrees. By an interesting coincidence the first medical Provost welcomed the first medical Lord Mayor of London. Much interest centred around memorials in honour of two famous medical names connected with Trinity. The Provost unveiled a memorial stone to John Stearne, the founder of the Royal College of Physicians, and Dr. Mahaffy read an address dealing with Stearne's work. Dr. Cunningham, a more recent professor, was honoured by the unveiling of a memorial bronze panel by Prof. James Little.

VACATION courses are to be held in University College, Dublin, under the direction of Rev. Dr. Corcoran, the professor of education. Admission to these courses is free. They commence on Tuesday, August 6th, and last a fortnight. The subjects are: English composition, history and geography, English literature, and Latin. Rev. H. Browne, professor of Greek, has also arranged a short course of lantern lectures and practical demonstrations dealing with classical teaching, which should be very illuminating for the teachers of classics as showing how their work can be aided by modern discoveries.

ONCE more we are able to record a benefaction for Trinity College. In accordance with her husband's wishes, Mrs. Lecky, the widow of the famous historian, has bequeathed all her lands in Queen's County and County Carlow to found a chair of modern history, to be called "The Lecky Chair of History." She has also bequeathed to the college all her husband's manuscripts and his bronze bust by Boehm, and to the National Gallery, Dublin, several pictures.

WELSH.

THE foundation-stone of the Welsh National Museum has been laid by his Majesty the King. The museum, it is felt, has a great future before it. It not only will consist of show collections for the ordinary visitor, but also it will have research and study collections for the specialist and the student. The King made a very interesting speech, referring to the late King Edward VII.'s interest in the progress and welfare of the people of Wales and to his own visit last year to lay the first stone of the Welsh National Library at Aberystwyth. The King also visited the University College of South Wales at Cardiff, and was received in the handsome library given to the college by the Drapers' Company of London. The King also opened the new Viriamu Jones Research Laboratory at the college—a most valuable addition to the college work.

THE President of the Board of Agriculture and Fisheries has announced that, in view of the increased activities of the Board, especially in regard to scientific research and technical education, he has obtained authority for the appointment of an Agricultural Commissioner for Wales, whose primary duty will

be to advise the Board as to the manner in which grants from the Development Fund can with advantage be expended in Wales, and to advise the Board on other sides of their work. An Agricultural Council for Wales is to be constituted, consisting mainly of agriculturists nominated by the Welsh County Councils, and of representatives of the agricultural departments of University Colleges, which will meet twice a year for the discussion of agricultural questions and for the interchange of views between the members and the Board. Mr. Runci-man hopes to attend the first meeting of the proposed council, and to explain further the details of the scheme. Ordinarily, the Agricultural Commissioner will preside at the meetings of the council, and one of the inspectors of the Board will act as secretary. Prof. Bryner Jones, of Aberystwyth, has been appointed Commissioner.

THE recent report of the Board of Education under the Welsh Intermediate Education Act (1889) for the year 1911 announces that new schemes under the Charitable Trusts Act were sealed for the counties of Flint and Radnor and for the county borough of Swansea. A scheme for the county of Monmouth and a separate scheme for Dr. Williams's School, Dolgelly, were published during the year, and progress was also made with the consideration of schemes for Anglesey and Montgomeryshire, the latter of which is now sealed. Schemes under the Endowed Schools Act were finally settled for the counties of Cardiganshire, Carmarthenshire, and Pembrokeshire, and for Haverfordwest Grammar School, whilst schemes for Glamorganshire and Denbighshire were also under consideration during the year.

THE total number of schools under the Central Welsh Board is 96, and the number of pupils for 1910-11 was 13,335, viz., 6,498 boys and 6,837 girls, which shows a decrease of 126 boys and 268 girls on the returns for 1909-10. Nevertheless, the scholarship and bursaries returns show that £35,077 was spent on this account for 1910-11, as against £32,314. The approximate average salary for a headmaster is £372, for a headmistress £320; for an assistant-master £150, for an assistant-mistress £122. No assistant-master or assistant-mistress in a school under the Central Welsh Board receives as much as £250 a year, whilst 16 assistant-masters and 65 assistant-mistresses receive £100 or under a year. It is proposed by the new schemes to establish separate intermediate schools in Glamorganshire for girls. The report states that it is clear that the immediate need for the provision of intermediate education has been met in Wales.

THE report deals with the Central Welsh Board's system of inspection, and suggests the lines of its possible development: (1) The closer connection of inspection and examination. (2) The possible desirability of employing chief examiners as temporary inspectors, in order that the examiner may know the work of the school, and in order that the school may get the benefit of specialist advice based on a know-

ledge of its limitations and difficulties. The Board of Education, however, does not mention the extreme importance that examiners, to profit by visits to the schools in the highest degree, should themselves be experienced in the work of school teaching. (3) The report suggests that specialists might be employed to inspect those subjects of which, on account of their novelty or their quite recent development, the ordinary inspector may not have thorough knowledge—physical exercises and geography may be taken as examples. (4) It would be possible and permissible under the Treasury regulations to arrange inspections in such a manner that the *weaker* schools would be inspected more thoroughly and more frequently than those which have not so much need of criticism and guidance.

An appeal has been taken to the King's Bench Divisional Court by the Newport (Monmouthshire) Town Council against a decision of the Newport County Court, in which a student eighteen or nineteen years of age attending the Newport Technical School was awarded £100 damages for injuries to his left hand while using a circular saw in the technical school, on the ground that there had been negligence by the Corporation in not having the saw properly guarded. The higher Court allowed the appeal with costs, holding that there was not enough evidence to show that the Corporation had been negligent in not providing a guard for the saw. Further, there was nothing to show that, had a guard been around the saw, the lad would not have injured himself.

THE EXTENSION OF KNOWLEDGE.

Cambridge Manuals of Science and Literature. General editors, Dr. P. Giles and Prof. A. C. Seward, F.R.S. About 136 pp. each. (Cambridge University Press.) 1s. net per volume.

Home University Library of Modern Knowledge. Editors, Prof. Gilbert Murray, Herbert Fisher, Prof. J. Arthur Thomson, and Prof. W. T. Brewster. About 256 pp. each. (Williams and Norgate.) 1s. net per volume.

The People's Books. About 96 pp. each. (T. C. and E. C. Jack.) 6d. net per volume.

A NEW batch of books belonging to each of the above series induces us to deal with the general characteristics of the series rather than to attempt to describe the scope of individual volumes. In the case of the Cambridge series, nearly fifty volumes have been issued, and as many more are in preparation; fifty volumes have also been published in the Home University Library, and about thirty of sixty-one People's Books have been issued. In each case the volumes cover a wide range of subjects, the authors write with authority, and the appearance does credit to the publishers. All the books are, in fact, good as well as cheap, though some are necessarily better than others; for the ability to present a subject clearly and in good literary style is as variable as human nature itself.

In these columns, the point of view from which any book or series is regarded must be mainly educational; that is to say, we must be concerned chiefly with the suitability of the books for school use in one way or another, either as a pupil's book, a book

for the school library, or books which teachers will find of service. It would be possible to use some of the volumes as text-books, but most of them are unsuited for this purpose. A text-book has to be concise and precise in expression; and the exigencies of the school time-table, as well as the demands of school examinations, are not favourable to the ornate and personal touch desirable in books intended to interest the reader who will not be called upon to reproduce the information gained from their pages.

Between the text-book and the readable book there is a great gulf fixed, and it cannot be bridged. This is particularly the case with scientific subjects. Natural science can only be studied rightly by experiment and observation, and no book, however admirably written, can give that intimate knowledge of Nature which is gained by direct communion with her. It is impossible, however, for the most zealous student to do much more than touch the fringe of her garment; yet he may desire to know the experiences of others, and for this he must be dependent upon their testimonies. This applies to all departments of knowledge: the literary man who knows nothing of men of science and their work is as ill-educated as the scientific man who has no soul for art or literature. The publication of comprehensive books such as those before us should do much to promote sympathy between all these types of mind.

Several years ago Canon Lyttelton said that a classically trained man probably possesses the very best qualifications for hearing and judging a science lesson—that is, total ignorance of the subject; and, if we remember rightly, he pleaded on the same occasion for inspiring books upon scientific achievements, which would interest students who have not the desire or opportunity to take up systematic practical work. A like statement can be made, *mutatis mutandis*, as regards science students and the humanities. How far do the books in these three series supply this need? We must confess that they do so much more successfully on the literary side than on the scientific, except in the case of the biographies of men of science included in the People's Books. History, letters, religion, and like aspects of human thought and development can be understood without a technical vocabulary, whereas every step in a work upon a branch of science involves technical knowledge for its full comprehension.

In a text-book, the steps are carefully graded and no preliminary knowledge is assumed, whereas few of the books in the series before us would be intelligible without some previous acquaintance with the subject. Technical terms are frequently introduced without explanation, and far too much attention is paid to fact and too little to the spirit of scientific work. The result is that, so far as scientific subjects are concerned, the books are of little use for class purposes in most cases, and they are not simple enough to be read with interest by students not actually engaged in work upon the subjects with which they deal.

This brings us to the consideration of the specific characters of the three series. We regard the Cambridge Manuals as the most suitable for serious students, that is, students who are prepared to think while they read, and not merely to skim over the pages. There is much original work and thought in many of the volumes, and new ideas always require time for their assimilation. Few of the books are suitable for class use or for reading from cover to cover by pupils who know nothing of the subjects with which they deal, but they are all admirably adapted for extending knowledge of particular points. We go so far as to say that a complete set of these

manuals is as essential to the equipment of a good school as is an encyclopædia. The editors have cast their net so wide that practically every subject of outstanding importance is drawn into it. In the selection of authors and subjects the editors have shown great wisdom as well as understanding, and the list of volumes already published or in preparation commands respectful attention on account both of authority and comprehensiveness. We can conceive no better series of handy books for ready reference than those represented by the Cambridge Manuals.

The volumes in the Home University Library are, as a rule, more popular than the Cambridge Manuals; they are purely descriptive, and have no illustrations. Each volume is complete in itself, and presents a clear picture of a particular subject. Though they are not text-books, many of them are admirably adapted for use in class in connection with systematic work in science, history, geography, or other subjects. They are books to be read rather than to be placed upon a shelf for reference, and they should do much to broaden the outlook of those who by pressure of daily work in one groove have lost interest in the efforts and aspirations of others. The tendency of to-day is towards specialisation in everything, and we welcome the Home University Library as a successful endeavour to counteract its effects by providing the means of obtaining broad views of modern knowledge in many fields.

The People's Books are really marvellous little volumes, and it will be a long time before the enterprise they represent will be surpassed. The first sixty books issued, or in preparation, include twenty-four books on science subjects, eleven on philosophy and religion, eleven on history, four on social and economic subjects, and ten on men and matters of letters. A number of the books are biographical, and this forms an excellent and distinctive feature of the series. We do not believe a very useful purpose is served by including such subjects as organic chemistry, embryology, botany, and biology in a series of this kind, for in each case the subject is too large to be compressed within the limits of less than a hundred pages. A better plan would be to deal with one particular aspect of a branch of science instead of attempting to survey the whole. This remark applies, however, only to a few of the books; and for the rest we have nothing but praise for the editor's selection of authors and subjects. With such cheap but attractive, simple yet authoritative, books available, no school is justified in keeping them from its pupils. It should be easy for the teacher to select half a dozen of the volumes for class use during the year, and if he will at the same time encourage his pupils to purchase other volumes instead of the usual magazine of silly short stories, he will do well by his day and generation.

THE HISTORY OF ATHENS.

Hellenistic Athens. By W. S. Ferguson. xviii+486 pp. (Macmillan.) 12s. net.

A FEW books have been written on the Hellenistic age, but they are not adequate; in fact, it is clear that no adequate book can be written until the way has been prepared by a series of monographs. Mr. Bevan led the way with his "House of Seleucus"; Mr. Ferguson now follows with Athens. When we have similar works on the other parts of the Greek world Prof. Mahaffy will still be with us, we hope, to sum them all up in his brilliant way. But the period is a very difficult one. So quick and sudden were its

changes that we seem to be looking in a great kaleidoscope. There is much that is still obscure in this history; but of late years the discoveries of inscriptions and papyri have greatly enlarged our knowledge.

Mr. Ferguson has used these new sources, and so far as we are able to check him, he has used them fully and accurately. He is also well posted in the many articles that have appeared by English and foreign scholars, and he has opinions of his own which he supports by evidence. In one point, indeed, he falls short of Mr. Bevan. His style is not so clear, and he has a way of paraphrasing a name which sometimes makes his meaning obscure. If Demetrius and Pyrrhus are mentioned twice on a page, there is no need to call one at the second time the young Epirote king, and the other the handsome Macedonian ruler; true, we see which is which after a moment's thought. But it takes longer, unless one knows who's who as well as Mr. Ferguson, to see who is the crafty statesman in Alexandria on p. 192. This is an irritating trick. Sometimes a little fine writing makes an absurdity, as when it appears that Grote threw down his pen at the end of his great panegyric in September, and in October the Pythia was due, which Demetrius celebrated in Athens (p. 144).

One thing comes out clearly in this book: that the history of Athens did not end in 404, nor indeed at the death of Demosthenes; but that she still continued for centuries to be the chief place of intellectual life. In Athens gathered the philosophers, in Athens flourished comedy; she was a cosmopolitan city, where artists and men of letters found still their home, wherever they were born. Nor was her spirit dead; more than once she rose from a crushing defeat to struggle again for her old ideals. It is a pitiful story, however: for the weeds of corruption were growing apace, and it was too late to uproot them. Only one thing could have uprooted them; if Alexander had lived, and if he had been what he might have been, or if some other great man had taught Greece the secret of union. But perhaps that was always impossible for Greece, and perhaps the political rift of Greece to the world was dependent on the individualism which was its ruin.

We cannot say that even in this book the history of Athens is clear; but that is the fault of the history more than of the historian. Mr. Ferguson makes it much clearer than it ever was made before, to us at least, and we think it will be the same with most readers. Demetrius of Phalerum and Demetrius Poliorcetes stand out clearly in the picture, and with them many another of less note. The philosophers, too, take their due places in the history. We do not find them in separate chapters, or in a history of philosophy apart; they come and go as political circumstances allow them or drive them. We would direct attention also to the chapter on Delos, which is full of interest and novelty. Here the inscriptions enable Mr. Ferguson to add a new scene to history, in which he has used all the available material; it is unfortunate that the French are so slow to publish their results, and it is difficult to excuse them.

Finally, there are lessons to be gained by the modern politician, if he has the sense to learn anything from any source. In particular it becomes clear that a State which exists by sufferance of its neighbours is not likely to produce great men or great works of any kind. Athens is at its lowest when it ceases to defend itself by the personal service of every citizen.

THREE ENGLISH BOOKS.

English Prose for Repetition. By N. L. Frazer. 112 pp. (Macmillan.) 1s.

Masters of English Literature. De Quincey. By Sidney Low. 352 pp. (Bell.) 3s. 6d.

The Story of English Literature. By Anna Buckland. 608 pp. (Cassell.) 3s. 6d.

Nor often do we have Prose for Repetition. There is a feeling about, especially among lazy people, that prose was never intended to be memorised; and the feeling is encouraged by our mischievous psychology books, which decry "rote" memory. As a matter of fact, no masterpiece that is not recallable, if not *in toto*, at least in extracts, is ever assimilated at all. Any reader may test this for himself; however many times "Prometheus Unbound" has been read, it is not your own until great parts have been learnt, even with an additional copying out into a reference book. We know and appreciate the parable of the Prodigal Son because it hangs verbally in our memories. But the modern world will memorise neither a book of Homer, nor an episode from the "Aeneid," nor a dozen Psalms, nor a couple of acts from Shakespeare. It is content with what it calls the "message." Of course, everyone will miss favourite pieces from Mr. Frazer's selection; but as one of the editor's questions is: "Do you know of any pieces which you would have included?" we are bold enough to point out that Shakespeare's prose is as good as anyone's; yet he is not here; and that to give Ruskin, Johnson, and Steele four extracts each, while Charles Lamb and the Authorised Version are dismissed with two each and Bacon with one, seems to us strange. And how we miss the "Sphinx" of Kinglake. Yet there is plenty of fine prose here to memorise; and boys like memorising prose, until they are taught that it is an unscientific thing to do.

One of the sweetest and grandest guides to prose which remains in the memory is *de Quincey*. Mr. Sidney Low has given us a long introduction, excellently stripping off the legend and showing the man. Even his admirers have, we think, not always done justice to this master of humour and pathos, lightened and sent heavenwards, and not deadened, by his opium. He had been in hell, as Carlyle saw; but without opium *de Quincey* must have journeyed there: and, what Coleridge and Carlyle might have remembered, he did not stay there. Mr. Low apologises for dwelling on his defects; but we do not feel any injustice. *De Quincey* stands alone. All the greatest essays are represented in this book; and it may well be taken down when the sixteen-volume old blue edition appears too large; but—it has no index.

Miss Anna Buckland's "History of English Literature" is now brought up to Thomas Hardy's poems and Kipling's "Recessional." We do not know what it is that marks this book with a charm; but no history of the subject, except perhaps Collier's, is quite so attractive to the young reader; it is a friendly book, and does not tell you to admire this and shun that: moreover, its criticism is intelligible. There might be more quotations: but the book often quotes, Charles Lamb fashion, without inverted commas. We hope the day is long distant when this history will not be read.

Pictures of British History. By E. L. Hoskyn. 64 pp. (Black.) 1s. 6d.—Sixty pictures, of which thirty-two are coloured, with text written to explain them. A capital book for a prize for junior classes. The "history" is not, of course, serious, but it is correct, and forms a good introduction.

RECENT SCHOOL BOOKS AND APPARATUS.

Modern Languages.

Specimens of German Prose and Poetry. By C. R. Fausset. 73 pp. (Nutt.) 1s.—A curious selection of anecdotes, fables, nursery rhymes, ballads, proverbs, songs, prayers, short stories, &c.; the principles guiding the compiler in his arrangement of this very mixed matter are by no means obvious. The point of the booklet is the phonetic transcription on the right-hand pages. On the whole, this has been well done. There are, of course, misprints, as when the *i* of *schreiben* is made long (p. 25), the *a* of *sah* (p. 5) and of *gestraft* (p. 53) short, *am* appears for *ain* (p. 17), *eine* for *einer* (p. 33), *dunkem* for *dunklem* (p. 73). It is a pity that Mr. Fausset did not adopt the rules of the *Bühnensprache* in his transcription of the German *g*, and that he is not more consistent in his use of the glottal stop and the mark of length; but here, too, the difficulty of the proof-reading may be the explanation.

Th. Zedelius, Geleite die draussen sind! Edited by D. L. Savory. viii+120 pp. (Rivingtons.) 1s. 6d. This new volume of the publishers' "Direct Method Easy German Texts" is as carefully edited as its predecessors. The story is divided into fourteen sections, averaging about 400 words, and copious exercises, carefully arranged, are supplied, as well as footnotes explanatory of the text. The term "easy" is, of course, relative: this text would only be found easy by pupils who have had two years' intensive teaching.

Personal and Social German Letterwriter. By F. Franck. Revised by J. C. H. Schafhausen. 128 pp. (Marlborough.) 1s. 6d.—Mr. Schafhausen's revision has been thorough, and the book now affords a comprehensive guide to the writing of German letters. Its value is enhanced by the inclusion of a number of letters by eminent men, such as Goethe, Schiller, Heine, Uhland, Moltke, and Bismarck. Every ordinary circumstance of life is represented; there are models of how to announce the death of a friend's husband, how to reprove a friend for returning a book in bad condition, and how to address a princess on behalf of the claims of a soldier's children.

H. Hoffmann, Iwan der Schreckliche. Edited by C. M. Poor. ix+344 pp. (Oxford University Press, American Branch.) 3s. net.—This is an excellent modern German story, eminently suitable for private reading by advanced pupils, but scarcely adapted for class use. The brief introduction is satisfactory, and the notes are carefully put together. The English Branch of the Oxford Press would have done well to omit the hundred pages taken up by the vocabulary, and to reduce the price. We do not share the American idea that every German text must be provided with a full vocabulary, and many regard it as a positive drawback.

Outlines of the History of German Literature. By J. G. Robertson. viii+320 pp. (Blackwood.) 3s. 6d. net.—Prof. Robertson's larger book fully deserved the warm welcome it received, and we are confident that these "Outlines" will meet with much appreciation. He is always lucid and sound, and in this handy volume has shown excellent judgment in condensation and selection. The chronological tables which he has added are an admirable feature. We warmly recommend this book to the notice of teachers.

Easy German Poetry for Beginners. Edited by C. W. Collmann. x+140 pp. (Ginn.) 2s.—The title may be somewhat misleading to English teachers; the book was compiled for use in America, where beginners in German are usually a good deal older than in this country. Schiller's "Bürgschaft" is scarcely a poem we should describe as "easy." Many old favourites—ballads and lyrics—will be found here, and scarcely any that are not to be found in existing anthologies. The editor has supplied full notes and a vocabulary. In the notes he has done well to give some English renderings, if only to show that some lyrics are untranslatable. Leland's rendering of "Du bist wie eine Blume" quoted here is as futile as any attempt to translate that lyric must be.

Classics.

Comparative Grammar of the Greek Language. By Joseph Wright. xx+384 pp. (Clarendon Press.) 6s. net.—The indefatigable Dr. Wright has produced another of his indispensable books, and very good it is. By compression he has got in an enormous mass of facts in good order, and a glance at the pages will show how much superior the English genius is over the German. In place of dazzling print and chunks of facts unrelieved by spaces, we have the eye helping the mind in every possible way except one—tabulation; but no doubt tabulation would have increased the size and cost of the book too much to be used. The matter is treated from the point of view of the assumed original language, not from the branches; but all important and well-attested material for the dialects has been used, though, of course, only select examples could be quoted. The scholar naturally looks first to see how the dialects are classified, and he sees that Dr. Wright, like other scholars, has discarded the traditional three branches, and used the affinities shown in the oldest inscriptions. He thus makes the following groups: Ionic-Attic, Doric, Acharian, Ellan, North-west group, Arcadian-Cyprian group, North-east or Æolic group, and Pamphylian. He is careful and cautious, he avoids wild hypotheses, and, in a word, his book may be trusted. The index fills forty pages.

An English-Greek Lexicon. By G. M. Edwards. xxxii+332 pp. (Cambridge University Press.) 7s. 6d. net.—This may be called a dictionary of Attic Greek, prose and verse, in spite of a few epic and other words that are included for their merits. P for prose and V for verse are almost the only explanations added to the words in the dictionary, though an author's name is given occasionally. The book, judged by its author's aim, is quite good, and the introduction has some very useful and judicious criticism, both of style and of authors. It is a safe book for the learner who must not exercise his critical faculty overmuch. But it is nothing like so full as Yonge's (and Yonge gives authority for nearly all his words, so that the student can use his judgment), and, apart from the introduction, not so useful. Neither this nor Yonge is at all the ideal English-Greek dictionary, which ought to be either a word-list complementary to a Greek-English, or more like a concordance, with ample quotations.

Homer, Iliad XV. and XVI. Translated by E. H. Blakeney. 63-136 pp. (Bell.) 1s.—We have already indicated the character of this translation: familiarity with it does not reconcile us to its style, or to the spelling of proper names. When the translator prints *Stux* in the text and *Styx* in the notes (p. 65) he gives his case away: he admits that the text is alien to speech, and this is fatal to any composition. This

apparent accuracy, moreover, is really inaccurate, since the English *y* is nearer in sound to *v* than the English *u*. In some points Mr. Blakeney has been led astray. He makes Zeus hang two "anvils" to Hera's feet (p. 64). Where would Zeus get two anvils? He was no blacksmith. They were stones, of course. Why "meed" of honour for "share" (p. 72)? He speaks of a "later notion of a goat-skin" in the word *aiyis*, arising from "false analogy" (p. 77); but Herodotus tells us all about this, and we prefer his view to Mr. Blakeney's. If *aiyis* is not from *aig*, what is it from? But the real fault of the version is that it is unreal: all the life of the language has disappeared.

English.

English Literature in the Nineteenth Century. By A. T. Wyatt and H. Clay. 177 pp. (Clive.) 2s.—Mr. Wyatt is well known for his patience and accuracy. The book aims at being concise, and it is so, even to slanginess. The great writers are all carefully touched, but not touched deeply; the "Ancient Mariner" and "Prometheus Unbound" generally burn the critics' fingers. No room is found for Francis Thompson, perhaps because of his date; and a page or two might have been added giving the names, at least, of some about whom the world is undecided.

Shakespeare: Comedies, Histories, and Tragedies. With Introduction and Glossaries. (Frowde.) 2s. each volume.—This edition is admirably printed; it contains Swinburne's introduction and Dowden's introductory studies; its glossaries are full. No cheaper or better edition since Gilbert's beautifully illustrated quarto is known to us. Of course, as we have often hinted, the conventional nineteenth-century view of Shakespeare shows signs of change, and that change is not seen here; but perhaps we shall have to wait ten years for that. "Othello," "Macbeth," "Richard II.," and perhaps "Henry V.," cry for new "introductions." Shakespeare is still the hunting-ground of the critic as the centuries move on.

A Garland of Verse. By A. H. Miles. 247 pp. (Stanley Lane.) 2s. 6d.—Three anthologies for children deserve notice. The veteran anthologist, A. H. Miles, has produced a new thing. Dividing up his subjects (Home, Growing Up, Noah's Ark, Sport, Humour, The Story of the Year, are some of his titles), he manages to cover all childhood. The book is large, post 8vo, and in double column, but it is well printed, and contains choice for everyone.

Mathematics.

Introduction to Analytical Mechanics. By A. Ziwet and P. Field. ix+378 pp. (New York: The Macmillan Company.) 7s. net.—Books written to meet educational requirements in America are rarely well adapted for use in this country, and we regret to have to say that this is conspicuously the case with regard to the work before us. If we consider only the exposition of the subject, it would be difficult to find fault. There are very neat proofs of many of the standard theorems, and there is a breadth of outlook which raises the work far above the commonplace. We confess, however, that we have found some of the analysis, especially that of the accelerations of a rigid body, rather heavy. The ground covered ranges from the elements of the subject to the statics and kinetics of particles and rigid bodies. It includes attractions, Lagrange's equations, and Hamilton's principle, and the authors expect all this to be read by the ordinary student in one year. Of

course it can be done, but the working of examples, upon which such stress is laid in this country, has to be sacrificed. There are examples, it is true, but they are not very numerous, and are perfectly straightforward. Of the forty-one on rigid dynamics, thirty-six relate to the calculation of moments of inertia. There are discussions of the distribution of principal axes in space, of polhodes, herpolhods, &c., but there is nothing about the motion of a ball or a cylinder on a plane, and there are no examples of the impulsive motion of a rigid body. The book represents the divergence between English and American methods, and it would be of interest to compare the results.

An Introduction to the Lie Theory of One-parameter Groups. By A. Cohen. vii+248 pp. (Heath.) 5s. net.—This is an excellent introduction within moderate compass to a subject the influence of which is being felt more and more in all branches of mathematics. One of the most fruitful applications of the theory is to differential equations, and it is with this aspect of the subject that the author chiefly deals. It is not intended that students should approach differential equations from the point of view of this theory, but there can be no doubt that after the ordinary treatment the reading of such a work as that before us will prove immensely helpful and illuminating. In addition to the chapters on differential equations there is one on contact transformations, which play an important rôle in the discussion of the differential equations of dynamics. There is a considerable number of examples, and these will help the reader to familiarise himself with the details of the subject.

Science and Technology.

First Book of Zoology. By T. H. Burlend. viii+159 pp. (Macmillan.) 1s. 6d.—On the botanical side of biology, the rapid development of ecology has been the most marked feature of the past ten years. In zoology, during the same period, the progress made in the study of the relation between structure and environment has been relatively small, in spite of the fascinating nature of the problems involved. Among the other excellent features of Mr. Burlend's little book, therefore, the unusual prominence given in every chapter to "adaptation to environment" is specially welcome. Teachers who wish to give their pupils a thoroughly sane and enjoyable introduction to zoology—neither sentimental on the one hand nor a "study of corpses" on the other—will do well to adopt this book. The clear instructions, at the ends of the chapters, for observational work not involving either dissection or microscopical examination, will be found particularly helpful, both in class work and in private study. The book is supplied with a large number of useful and attractive illustrations, including four coloured plates of insects and of birds' eggs.

Wild Flowers as they Grow. Photographed in colour direct from Nature by H. E. Corke. With descriptive text by G. C. Nuttall. Series 3. viii+199 pp.+25 plates. (Cassell.) 5s. net.—The two previous volumes of this work have been described already in these columns, and that before us merits the same measure of praise. There are twenty-five coloured plates reproduced from colour photographs of as many wild flowers, and they are as perfect representations as could be desired of the objects depicted upon them. In some cases we think it would have been an improvement to have photographed more of the plant than the flower alone, and an indication of size would be a useful addition; but as most of the plants are well known, the plates as they stand are effective enough to claim the admiration of all lovers

of the beautiful in nature. The text is particularly appropriate to the attractive pictures, being full of interesting points relating to the characteristics and properties of the plants, and rich in quaint references to them in the works of old writers. We cordially recommend the addition of each volume of the work to every school library.

Art.

"Alpha" Pencils. (L. and C. Hardtmuth.) 1d. each.—Although the "Koh-i-noor" pencil has become almost a household word, it is still, nevertheless, regarded as an expensive pencil, and as such somewhat of a luxury. It will be welcome news, therefore, to those who, appreciating a good pencil, cannot always rise to a "Koh-i-noor," to hear that Messrs. Hardtmuth have placed on the market a pencil at one penny which promises to take the same place among the cheaper pencils as does the "Koh-i-noor" among its more expensive rivals. After a trial, during which the new pencil, the "Alpha," has emerged scathless from various ordeals, we can safely assert that the "Alpha" pencil possesses excellent features—of texture, touch, and durability—which make it a most desirable pencil, and one that is likely to prove most suitable in all respects of price and quality for school and general use.

Building Construction and Architectural Drawing. By John A. Reid. 26 plates, with notes. (Blackie.) 4s. net.—This handy portfolio of details of building construction should prove of very general utility. Apart from its appeal to the professional student, it contains much information of a valuable nature for the ordinary mortal who may some day become a householder or a property owner. The drawings are excellent examples of draughtsmanship, and the subjects dealt with include everything essential between foundations and chimney pots.

Miscellaneous.

The Girls' School Year Book (Public Schools), 1912. xiii+640 pp. (The Year Book Press.) 3s. 6d. net.—Each issue of this year book is increasingly useful, and its trustworthiness as a book of reference is vouched for by the fact that it is now officially recognised by the Association of Headmistresses. Part II. of the volume provides parents and guardians with an answer to the question: "What shall we do with our girls?" and, in addition, the book gives detailed particulars of some 160 public secondary schools for girls.

EDUCATIONAL BOOKS PUBLISHED DURING JUNE, 1912.

(Compiled from information provided by the Publishers.)

Modern Languages.

"Free Composition in German." By F. W. Wilson. (Edward Arnold.) 1s. 6d.

"Le Savetier des Fées." Adapté par E. Magee. (Petits Contes pour les Enfants.) 48 pp. (Blackie.) 4d.

Wilhelm Hauff, "Die Karavane." Reissue with Vocabulary. Edited by Dr. A. Schlottman. viii+272 pp. (Cambridge University Press.) 3s.

Balzac, "Le Curé de Tours." 120 pp. (Heath.) 1s. 3d.

"Cinquante Petites Lettres en Français." By Louise J. Weisgerber. 60 pp. (Harrap.) 6d.

Taine, "La Littérature Anglaise." 96 pp. (Harrap.) 8d.

"Key to the Exercises in Siepmann and Pellissier's Public School French Primer." By W. H. David. 122 pp. (Macmillan.) 4s. 6d. net.

Classics.

"Livy, Book I." By H. J. Edwards. lviii+232 pp. (Cambridge University Press.) 3s. 6d.

"The Public Orations of Demosthenes." Two vols. (Oxford Library of Translations.) Translated by A. W. Pickard-Cambridge. 264+208 pp. (Clarendon Press.) 3s. 6d. net per vol.

Juvenal, "Fourteen Satires." Translated by Alexander Leeper. New edition. 240 pp. (Macmillan.) 5s.

"Augustus." ("Clari Romani" Series.) By A. J. Spisbury. 128 pp. (Murray.) 1s. 6d.

English: Grammar, Composition, Literature.

"Exercises in Composition." Parts I, II, III. By E. J. Kenny. 48 pp. each. (Edward Arnold.) 4d. each.

"Historical Lyrics and Ballads." Part II. Selected and edited by S. E. Winbolt. (Plain-text Poets.) 112 pp. (Blackie.) 6d.

Blackie's Story-book Readers. Third Series: "The Golden Touch." By Nathaniel Hawthorne. 48 pp.

"The Lost Dog." By Ascott R. Hope. 48 pp.

"The Fellow Traveller." By Hans Andersen. 48 pp.

"Fairyfoot and Merrymin." By Frances Browne. 48 pp. 2½d. each.

Fourth Series: "Red Snow and other Parables." By Mrs. Gatty. 80 pp. 3½d.

"Stories from Chaucer Retold from the Canterbury Tales." By M. C. Macaulay. viii+194 pp. (Cambridge University Press.) 1s.

Edmund Burke, "Speech on Conciliation with America." By A. D. Innes. xxxiv+104 pp. (Cambridge University Press.) 1s. 6d.

Chambers's Standard Authors: "The World of Ice." By R. M. Ballantyne. 260 pp. 8d. net.

"A Wonder Book." By Nathaniel Hawthorne. 182 pp. 6d. net.

"Tanglewood Tales." By Nathaniel Hawthorne. 212 pp. 6d. net.

"Chambers's Etymological Dictionary." Enlarged edition, with supplement embodying all the most recent words, including compound words and phrases. 695 pp. 1s. net.

Shakespeare, "Coriolanus," "Hamlet," "Tempest," "As You Like It," "Midsummer Night's Dream." Edited by G. S. Gordon. (Clarendon Press.) 1s. net each.

Macaulay, "Essay on Bunyan." (Oxford Plain Texts.) 16 pp. (Clarendon Press.) Paper covers, 3d.; cloth, 4d.

Goldsmith, "Deserted Village." Edited by G. G. Whiskard. 39 pp. (Clarendon Press.) 6d.

Swift, "Battle of the Books." Extracted from Selections from Swift. Edited by Sir Henry Craik. 94 pp. (Clarendon Press.) 2s.

Clough, "Poems." (Oxford Plain Texts.) 32 pp. (Clarendon Press.) Paper covers, 3d.; cloth, 4d.

"Lectures on the Teaching of Composition." By E. T. Campagnac. (Constable.) 1s. net.

"The Boy's Froissart." By Madalen Edgar. 282 pp. (Harrap.) 5s. net.

"Treasury of Prose and Poetry for Learning by Heart." I. Edited by Amy Barter. 64 pp. (Harrap.) Paper, 4d.; cloth, 5d.

"Perse Play Books." No. 1. Dramatic Work by Boys of the Perse School. With a Foreword by Dr. Rouse and an Introduction by H. Caldwell Cook. 48 pp. (Heffer.) 1s. net.

The Tudor Shakespeare, "Love's Labour Lost." Edited by James F. Royster. 168 pp. (Macmillan.) 1s. net.

- "A New English Grammar for Junior Forms." By R. B. Morgan. 160 pp. (Murray.) 1s. 6d.
 "English Composition for Junior Forms." By E. E. Kitchener. 160 pp. (Murray.) 1s. 6d.
 "Matter, Form and Style. A Manual of Practice in English Written Composition." By H. O'Grady. 125 pp. (Murray.) 2s.

History.

- "The Ulm Campaign, 1805." By Col. F. N. Maude. xxxii+264 pp.; with 7 maps. (Allen.) 5s. net.
 "The Ancient World." By C. Du Pontet. xii+388 pp. (Edward Arnold.) 4s. 6d.
 "Cambridge Modern History Atlas." xiv+230 pp. +141 maps. (Cambridge University Press.) 25s. net.
 "The Navy and its Story." (Prize Edition.) By Arnold White. 176 pp. (Macdonald and Evans.) 2s. 6d.
 "The Navy: its Place in British History." (School Edition.) By Arnold White. 214 pp. (Macdonald and Evans.) 1s. 6d.
 "The Legacy of Greece and Rome." By Prof. W. G. de Burgh. 192 pp. (Macdonald and Evans.) 2s. 6d. net.

Geography.

- "Man and his Conquest of Nature." By Dr. M. I. Newbigin. 183 pp. (Black.) 2s.
 Cambridge County Geography: "North Lancashire." By Dr. J. E. Marr. xii+180 pp. (Cambridge University Press.) 1s. 6d.
 Lands and their Peoples: (1) "The Frozen North and the Eskimo"; (2) China and its People"; (3) "The Great Desert and its People"; (4) "The Prairies and the Morans." By J. W. Page. 32 pp. each. (Macdonald and Evans.) 2d. each.
 "Man and the Earth: a Simple Reader in Human Geography." By J. W. Page. 160 pp. (Macdonald and Evans.) 1s.
 Regional Geography: "The World—a Scientific Treatment." 224 pp. (McDougall.) 1s. 3d.

Arithmetic.

- "Blackie's Experimental Arithmetics, Constructive and Generalised." By Bertram A. Tomes. Book VI. 80 pp. Paper, 4d.; cloth, 5d. Teachers' Handbook. 160 pp. 1s. 6d.
 "Algebra for Beginners." By C. Godfrey, M.V.O., and A. W. Siddons. xii+270 pp. (Cambridge University Press.) With Answers, 2s. 6d.; without, 2s.
 "Short Methods and Byways in Arithmetic." By H. W. Dickie. 152 pp. (Chambers.) 1s.
 "An Introduction to the Theory of Statistics." Second edition, revised. By S. Udry Yule. xv+381 pp. (Griffin.) 10s. 6d. net.
 "The Elements of Geometry in Theory and Practice, based on the Report of the Committee appointed by the Mathematical Association." By A. E. Pierpoint. Part IV. (Longmans.) 8d.
 "Direct Arithmetics: Teachers' Books, III." 128 pp. (McDougall's Educational Co., Ltd.) 1s. net.

Science and Technology.

- "Exercises in Chemical Calculations." By Dr. H. F. Coward and W. H. Perkins. viii+152 pp. (Edward Arnold.) 2s. 6d.
 "Inorganic Chemistry." By W. A. Shenstone. New edition. Revised by R. G. Durrant. xii+572 pp. (Edward Arnold.) 5s.
 "Elementary Quantitative Analysis." By Dr. Wm. Briggs and H. W. Bausor. 130 pp. (Clive.) 2s.

- "Modern Copper Smelting." By Donald M. Levy. xii+259 pp. (Griffin.) 10s. 6d. net.
 "The Main Drainage of Towns." By F. Noel Taylor. 313 pp. (Griffin.) 12s. 6d. net.
 "The Laboratory Book of Mineral Oil Testing." By J. A. Hicks. With Introduction by Sir Boverton Redwood. 76 pp. (Griffin.) 2s. 6d. net.
 "Plant Study in School, Field, and Garden." New and enlarged edition. By J. S. Bridges and A. J. Dicks. 432 pp. (Ralph, Holland.) 3s. 6d. net.
 "Magnetism and Electricity: a Manual for Students in Advanced Classes." By E. E. Brooks and A. W. Poyser. (Longmans.) 7s. 6d. net.
 "Laboratory Instruction Sheets in Elementary Applied Mechanics." By Prof. Arthur Morley and William Inchley. (Longmans.) 1s. 3d. net.
 "The Depths of the Ocean: a General Account of the Modern Science of Oceanography." By Sir John Murray and Dr. Johan Hjort. 842 pp. and 13 plates and maps. (Macmillan.) 28s. net.
 "Principles of Health and Temperance." By Mrs. Ellis H. Chadwick. 180 pp. (Pitman.) 1s. 3d.

Pedagogy.

- "Local Government Handbook on Education." By H. Osman Newland. 354 pp. (Griffin.) 6s. net.
 "Schools of Hellas: an Essay on the Practice and Theory of Ancient Greek Education from 600 to 300 B.C." Second edition. By Kenneth J. Freeman. 320 pp. and 15 plates; illustrated. (Macmillan.) 5s. net.

Miscellaneous.

- "Stories for Young Hearts and Minds." By F. J. Gould. viii+304 pp. (Allen.) 2s. 6d. net.
 "The Aims and Methods of Teaching Needlework." By Miss R. Robinson. viii+136 pp. (Edward Arnold.) 2s. 6d. net.
 "Scripture Teaching in Secondary Schools." By N. P. Wood. xiv+74 pp. (Cambridge University Press.) 1s. 6d. net.
 Chambers's Nature Readers: "Birds of the Garden." "Birds of the Wood." 64 pp. each. 4d. net each.
 "Songs for Little Singers." Music by Alicia Adelaide Needham. 64 pp. (Chambers.) 1s. 6d. net.
 "Seasonal Trades." Edited by Arnold Freeman. Introduction by Sidney Webb. (Constable.) 10s. 6d. net.
 "Two Selected Bibliographies of Mediæval Historical Study." Compiled by M. F. Moore. Preface by Hubert Hall. (Constable.) 5s. net.
 "Civics: intended for Boys and Girls from Fourteen to Sixteen Years of Age." By Leila J. Sparkes. 80 pp. (Headley.) 1s. net.
 "Introductory Philosophy: a Text-book for Colleges and High Schools." By Charles A. Dubray. With a Preface by Prof. E. D. Pace. (Longmans.) 10s. 6d. net.
 "The Life of Nelson." By Geoffrey Callender. (Longmans.) 1s. 6d.
 "Toys and Toy Making." By George Johnson. (Longmans.) 3s. 6d.
 "The Student's Guide to Life Assurance." By A. W. Tarr. 224 pp. (Macdonald and Evans.) 3s. 6d.
 "Clifton School Addresses." By Sidney T. Irwin. 244 pp. (Macmillan.) 3s. 6d. net.
 "The Teachers' Book of Constructive Work for Elementary Schools." By Ed. J. S. Lay. 154 pp.; illustrated. (Macmillan.) 3s. 6d. net.
 "Vest Pocket List of French Verbs." 48 pp. (Pitman.) 3d.

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 Use of Practical Exercises in the Teaching of Geography.

PRACTICAL geography as generally understood is out of place in a course intended for elementary or secondary schools. The schoolboy can no more under present conditions be a geographer than he can be a man of science. The strange medley of experiments that swell out the practical geography text-books serve only to bewilder the student of geography as to its real purpose. Most school experiments are but carefully laid plots in which the pupil plays a passive part, the "supervision" and "guidance" of the master being usually a matter of seizing the pupil firmly by the nose and guiding him by paths of bad observation and bad logic to the necessary conclusion. The business of the teacher of geography is to set before his boys, with ever greater detail and modification in succeeding years, what may be called the Geographical Argument. This is an assertion and demonstration of the fundamental and necessary interdependence of the facts set out on the physical feature map, and those set out on the isobaric map, and those set out on the rainfall map, and those on the vegetation map, and so on. To the student of geography the map is his printed page. No doubt for the proper understanding of these maps a certain *equipment* of knowledge and skill is necessary. But this is antecedent to, and outside of, the subject proper, just as some knowledge of mathematics and the ability to read and write are part of the necessary equipment of the chemist, though they are not themselves chemistry. The readings of ten thousand rain gauges, the researches of a hundred geologists, and the hardly won information of the explorer are focussed on to a sheet of paper. This is the map. To connect these causally; to infer the explanation of a patch of dense population from the disposition of the rocks, the hills, and the rivers—corrected or suggested by constant historical reference—this is the business of the schoolboy. It certainly is not his business as a student of geography to invade the realm of the cartographer, or the meteorologist, or the astronomer, or the geologist, or the botanist, or the chemist, or the physicist. These, with the historian, hand up the results of their labour in a particular sphere to the geographer, who correlates them, and shows some necessary connection between them. Any geographical exercises which do not directly conduce to the apprehension of this geographical argument must be courageously ignored.

Moreover, why should practical geography be limited, as it is, to the work of the astronomer, the surveyor, and the physicist? Why should we chiefly take readings of the rain gauge or of the barometer or of the varying altitude of the sun? Human physiology, botany, or zoology are surely quite as important. No boy ever understood the connection which exists between rainfall and vegetation better for having taken daily readings of the rain gauge. The suggestion that a connection existed between a series of maps has been sufficient to awaken the liveliest interest and the most thoughtful speculation in boys, who, though they might suggest a number of reasons for this town being small and that one large, had, so far as I know, never seen a rain gauge, never made a "wind star," and never measured their playing field.

The craze for ingenious exercises and experiments,

for an out-of-the-way method of performing some simple process, and the distracting multiplication of sides to a subject, has been brought to a ludicrous pitch in elementary schools. The spirit is invading secondary schools. The new geography is in its infancy; let us not drag into it the special subject with which we as individuals are most familiar, and call the intruding bias an essential one. Practical geography is the physical science bias, and it must be ruthlessly cut away.

CLEMENT HOPKINS.

County School, Isleworth, June 27th.

The Place of Grammar in the Teaching of English.

MAY I as a teacher of English add my statement of opinion to those in the July issue of THE SCHOOL WORLD?

It seems to me that the whole blame which has fallen on "formal" grammar teaching is due to faulty methods of teaching. I remember quite well that as a small boy I received many lessons on parsing, and even acquired a certain mechanical deftness thereof long before I had any introduction to analysis, and that as a result my mental impressions were very far from clear on any point connected with the subject.

But surely, given good teaching and given also a rightful order of presentation, lessons in grammar are of great value. Surely also they should be separate from the literature and composition lessons. Although at times when reading a fine work we may well stop to consider some passage which affords a happy illustration of a grammatical point, it seems to me to be a great pity that either a teacher should feel that he has to rely on the more or less casual teaching of grammar to supply the need which he so often finds, or that a pupil should feel that a classical work's chief value is as affording examples for grammatical exposition. In addition, is not the composition lesson best regarded as a means to the acquisition of ideas and their correct and adequate presentation? If so, for that there must be preparatory grammar lessons. Therefore, it appears that both in literature and composition times we find the need of some previous grammatical knowledge, so why not allot a definite time to the subject as a subject?

Again, is there any teacher in a school which receives ex-elementary schoolboys who has not found the necessity for early definite grammar lessons? Are my experiences unique, or do others find that points in modern language teaching, e.g., the difference between *mon* and *le mien* in French, are as readily grasped by junior scholarship holders as they would be had definite grammar been a general subject in the elementary schools? Often have I been saddened by the need to explain to an ex-elementary schoolboy beginning French the difference between a noun and an adjective, to say nothing of less simple matters.

In conclusion, I am far from wishing to lessen the time given to English literature or to composition. In schools of the type of that in which I teach I regard the former as being our most valuable means of giving culture and grace of thought, and a valuable aid to the acquisition of even more important values; the latter is our best means of securing the adequate expression of such grace of thought, such culture, and such knowledge as we can instil. But I would plead for the retention of a poor period of three-quarters of an hour once a week to be given from bottom to top of school to the definite, formal study of grammar to build up in the pupil's mind a clear, logical framework, which can be made a complete and full edifice with the aid of the "mere references, reminders, and *obiter dicta*" from the kindred lessons.

ARTHUR C. NORTON.

The Grammar School, Tewkesbury.

TEXT-BOOKS on English grammar are usually divided into two parts—Accidence and Syntax. I suppose everyone will agree with the Circular of the Board of Education that syntax is best taught in connection with English composition. We are left with accidence. The greater part of accidence is generally devoted to wearisome definitions, classifications, and usages of the various parts of speech. If the object of this Circular be to discontinue the teaching in schools of this part of formal grammar, then I think the majority of teachers will again find themselves in agreement with the spirit of the Circular. But after ruling these two sections out of question, there is left a minimum amount of formal English grammar which, in my opinion, must be mastered before the age of twelve. I cannot see how any pupil can begin the study of a foreign language, or even continue the study of English intelligently, unless, by the time he is ready to enter a secondary school, he is able (1) to analyse a simple sentence; (2) to recognise the function of a word in a sentence; (3) to tell one tense from another; (4) to distinguish the active from the passive voice.

Beyond this minimum there is not much more formal grammar required during the secondary-school course unless some parsing and more advanced analysis may be added. A senior class might go on with précis-writing and the elements of logic, particularly those parts dealing with the syllogism and with fallacies. As a rule, there is a good deal of solid work done in schools under the name of grammar which is not really grammar in the strict meaning of that term. Perhaps language-work would be a more accurate designation. As regards its place on the school time-table, my own experience is that far better results are obtained by keeping the general work in English language entirely separate from the study of English literature.

ROBERT F. S. MORRISON.

The Grammar School, Berwick.

The Teaching of Scholarship Mathematics.

TEACHERS of scholarship mathematics in the secondary schools owe Dr. Charles Davison a debt of gratitude for his paper on "Mathematical Essays" in the June number of THE SCHOOL WORLD, and the pedagogic discussion contained therein. Up to the present time much has been done to find out the best methods of teaching mathematics to the non-mathematical boy, but very little has been attempted in the cause of the pupil who is being definitely trained as a mathematical expert. The above paper might very well form one of a series of papers discussing the most effective methods of teaching the more advanced mathematics to scholarship candidates on similar lines to what has been so successfully accomplished in the case of the average boy. The pupil who is definitely specialising is worthy of being taught the most up-to-date lore of the subject if for no other reason than that he is likely afterwards to be teaching the subject himself to the next generation, and the better his own knowledge, the better material will he dispense to his pupils. Free discussion is like opening the windows to let in fresh ventilation. Our teaching is often archaic, and better methods could often be devised. Thus the elaborate and careful teaching of how to find the greatest term in the binomial expansion still survives. The hodograph is still an honoured instrument in proving s and v^2/ρ in dynamics when a touch of the calculus provides simple and direct proofs; it seems like using goat-skins now that umbrellas have been invented.

WILLIAM P. MILNE.

Clifton College.

Models for Teaching Solid Geometry.

FOR constructing skeleton models of cubes, octahedra, &c., wooden rods with needle-pointed ends are sometimes used, the ends being fixed into small pieces of cork. Such a method has, however, a great disadvantage in that the joints are not flexible, and it is difficult to adjust the rods to the required angles. A joint which is stiff and the angles of which can be varied easily is wanted. I have found that models can be quickly and accurately put together by the use of the following simple apparatus.

Cut three pieces of 16 S.W.G. copper wire, each $2\frac{1}{2}$ in. long, hold them together, and bind them round the middle with about ten turns of 22 S.W.G. copper wire. Touch this part with a little solder, and then cut into two equal lengths. By bending the ends of the wires outwards two little tripods are obtained. A supply of three- and four-legged pieces is required.

From the toyshops or ironmongers round wooden rods about $5/16$ in. diameter can be obtained, which are sold in 4 ft. lengths at 10d. a dozen. Cut them up into lengths varying by 1 in., the largest 15 in., the smallest 10 in., and with a twist drill rather smaller than 16 S.W.G. make a hole at each end axially.

By inserting the legs of the tripods, &c., into these holes any framework can quickly be built up.

By rolling a piece of thin brass round one of the rods a split tube can be made with which rods can be joined telescopically and any length obtained.

THOMAS PARKES.

The Grammar School, Barnsley.

Greek Tragedy.

IN his courteous notice of my book on "Greek Tragedy," your reviewer criticises my remark that Phædra was "worse than Potiphar's wife," and suggests that I "can scarcely have read the play attentively" if I do not see that "there is a world between Phædra and Potiphar's wife." As the point is of importance, I shall be greatly obliged if you will allow me to say that my remark did not apply to the Phædra of Euripides. My suggestion was that *the Phædra of tradition* was utterly bad, and that Euripides, by creating a sympathetic Phædra, at once showed his humanity and scandalised his contemporaries. It is to Euripides that we owe our conception of a Phædra between whom and Potiphar's wife there is indeed a world of difference.

J. T. SHEPPARD.

King's College, Cambridge.

The School World.

A Monthly Magazine of Educational Work and Progress.

EDITORIAL AND PUBLISHING OFFICES,
ST. MARTIN'S STREET, LONDON, W.C.

Articles contributed to "The School World" are copyright and must not be reproduced without the permission of the Editors.

Contributions and General Correspondence should be sent to the Editors.

Business Letters and Advertisements should be addressed to the Publishers.

THE SCHOOL WORLD is published on the first of each month. The price of a single copy is 6d. Annual subscription, including postage, 7s. 6d.

The Editors will be glad to consider suitable articles, which, if not accepted, will be returned when the postage is prepaid.

All contributions must be accompanied by the name and address of the author, though not necessarily for publication.

The School World

A Monthly Magazine of Educational Work and Progress.

No. 165.

SEPTEMBER, 1912.

SIXPENCE.

TEACHERS AND EDUCATIONAL RESEARCH.

By T. RAYMONT, M.A.

Goldsmiths' College (University of London).

I.

RESEARCH IN GENERAL.—No serious student, and no professional man who is doing much good in his profession, needs to be convinced of the importance of research. We master the elements of science, or we make a study of a movement in history, until we begin to find all roads leading to unexplored regions, and we are at last impressed not so much by what is known as by what is not known. Though it is doubtless true that a society for the suppression of useless and pernicious research might find abundant scope for its energies, yet the fact remains that in every branch of science or of letters important problems await investigation by those who are qualified by knowledge and temperament to undertake it. The gain of such research to society at large is often obvious enough, but the personal gain to him who undertakes it is not less real, for when once he has tasted the joy of unveiling a new bit of the whole truth, when once he has exchanged the receptive for the originaive attitude of mind, his whole outlook upon his subject is thereafter transformed. He must indeed learn to keep his head. He must resist the narrow specialist's tendency to concentrate attention upon a pool of water until the existence of an ocean is forgotten. When this condition is satisfied, and when the work is undertaken in the truly scientific spirit, which is (among other things) the spirit of sincerity and humility, research is twice blessed; it blesses him that gives and them that take.

EDUCATIONAL RESEARCH.—So much for research in general. But now comes the question whether the title of this article can be justified in any strict sense. Is there, it may be asked, any case for "educational research," as this term should be understood by a scientific man?

We can all admit that there is such a thing as the *study* of education, but is there such a thing as a *science* of education? Well, a good deal of a *priori* argument has been expended upon this theme, and the existence of such a science has been asserted and denied with equal assurance. Discussions of this kind do not, however, carry us very far. If there be a science of education, it must and will assert itself as time goes on by the methods of its inquiries, and by the utility and trustworthiness of its results. At any rate, we may truly say that genuine attempts are being made nowadays in the chief civilised countries to conduct educational investigations on scientific lines. This being so, the abstract question referred to above may very well be allowed to stand over for the present. If this work be of charlatans it will be overthrown, but not otherwise. Meanwhile there is reason to believe that many teachers are willing to join in the quest for that exact knowledge which science seeks to put in the place of mere opinion, and it is for them that these remarks are intended.

LEADING VARIETIES OF EDUCATIONAL RESEARCH.—Scientific investigation into educational problems is not altogether of recent origin. Empirical treatment, of course, we have always had with us. But in addition to this there grew up a sort of scientific treatment which may be called the method of *applied psychology*. The psychology so applied was entirely introspective and often rather metaphysical, but in the faith of it educational questions were attacked—at any rate with courage. The difficult problem now known as that of the "transfer of training" presented, in fact, no difficulty. It was thought, for instance, that learning anything by heart must needs make it easier to learn anything else by heart, all such cases being referred to a faculty of memory. There were other defects in the method, not removable by a corrected psychology. There was a tendency to read into the minds of children facts which had been

gathered by adult introspection. Partly in order to avoid this fallacy there arose the method of *child study*, in which observations upon the interests and activities of children were collected, sometimes in statistical form, with the view of being made the basis of a revised educational practice. The empirical generalisations reached by this method are usually interesting and sometimes suggestive; for instance, a recent investigation of the kind shows what sort of things London children of different ages prefer to draw when left to themselves.¹ Inquiries of this nature, involving observation and statistical comparison, have been very largely pursued in America.

More recently, attempts have been made, by what we may call the method of *experiment*, to introduce into educational research the element of control and sometimes of exact measurement. These attempts correspond with the tendency to place psychology among the experimental sciences, and to loosen its traditional connection with general philosophy. As an instance, the experiments which have been carried out upon the above-mentioned problem of the transfer of training may be cited.

Does a boy become neater and more accurate in other ways because he has been trained to neatness and accuracy in doing sums and drawing maps? Do we really reason more cogently about other things than triangles and circles because we have studied geometry? Do we learn to write good English by learning to write passable Latin? In short, do we learn to do *anything* by practising something else? Questions like these are being subjected to definite experiment, and the profound practical importance of such inquiries is obvious when we reflect upon the claims that have traditionally been made for certain subjects of instruction.

THE RELATIVE VALUES OF THE METHODS.—These, then, broadly speaking, and in rough chronological order, are the methods by which educational investigation has been, and is being, pursued; first, the application to educational problems of the results of introspective psychology, which is necessarily adult psychology; secondly, the external observation of children's activities, and the more or less systematic registration of the results; and, thirdly, experimental inquiry, in which some attempt is made to control the conditions under which observations are carried out. Which of these classes of investigation, it may be asked, holds within itself the greatest promise

of fruitful results? That is a question to which the experts themselves would not, I apprehend, return a unanimous answer. The youngest of the band, the cultivators of "experimental pedagogy," are, of course, the most confident. Well, youthful enthusiasm is a fine thing; and the man of one idea, though he is apt to make himself something of a nuisance, is usually the man who gets things done. But whilst we may justly entertain great hopes of the newest branch of educational research, we must not lightly dismiss the others as of small account. At present there is room for all—for the person who in the seclusion of the study ruminates upon the lessons which introspective psychology has for the teacher; for him who makes accurate records of the activities of babies, older children, and adolescents; and for him who seeks to apply the tape measure to mental processes.

THE TEACHER AND THE EXPERT RESEARCHER.—Let us now consider the position of the school teacher, as distinguished from, say, the university lecturer in education, with regard to these various methods of educational research. In the first place, it is obvious that so far as such research requires the knowledge which only a trained psychologist possesses, only those teachers who happen to be trained psychologists are qualified to undertake it. Other teachers can, indeed, do much to help the expert psychologist indirectly, by enabling him to carry out his experiments so that the results may not be vitiated by disturbing causes. The very presence of a stranger in the class-room is such a disturbing cause, which can often be eliminated if the teacher will undertake to carry out strictly the instructions of the expert. Another difficulty with which the outside expert has to contend is that of time. Considerations of convenience tempt him, and sometimes compel him, to rely upon two or three visits to a school in order to obtain his data, whereas there is often nothing to prevent the teacher from letting his experiment last two or three terms should he think it necessary. Even when research involves technicalities with which he is unacquainted, the teacher can thus do much to further its ends.

But after we have struck out all problems requiring special knowledge of mental processes there certainly remains a wide field of investigation for the interested and enterprising teacher. Indeed, it might be held that most of the immediately important problems still remain, because the expert investigator deals largely with questions the subtlety and intricacy of which even he is not always, it is to be feared, fully aware. To such questions final and uncontested answers are hard to

¹ See Mr. P. B. Ballard's paper in *The Journal of Experimental Pedagogy*, March, 1912.

reach, and even when they are reached there is still the difficulty of getting them realised by others and translated into practice. However this may be, we know that there are cases of great and immediate practical importance in which we have at present little or nothing to guide us except mere opinion, mere personal and individual likes and dislikes. Let us take a brief survey of the ground, and suggest a few typical problems, the careful and systematic investigation of which might, we think, be undertaken by teachers.

PROBLEMS RELATING TO THE CURRICULUM.—We live in times when the old scholastic order has changed, yielding place to a new which is still highly unsettled. The very word "curriculum" is suggestive of fluidity and the melting-pot. There would be no difficulty in furnishing a long list of problems which call for patient and systematic experiment, but we must confine ourselves to a few examples.

First, we may instance the position of what is known as *housecraft* or *homecraft* in the curriculum of girls' secondary schools, and its relation to instruction in pure science. The Board's recent annual report cautiously states that a certain amount of evidence is now available, on the strength of which a memorandum on the subject has been issued; but that the whole matter has been referred to the Consultative Committee, the report of which is awaited. In view of the great diversity of opinion which prevails, we may be sure, however, that no report that could *now* be issued is likely to settle the question. We shall have something to go on with, but what is needed is extensive experiment, in which the assistant-teachers responsible for pure science and for the domestic arts shall work together sympathetically, under the benevolent supervision of head-mistresses.

Next we have the question of *mathematics in girls' schools*. Is there any fundamental difference of capacity between boys and girls in regard to this subject? We have many opinions on the point, but no carefully sifted data, such as would be available if those teachers who have taught both boys and girls under precisely the same conditions were asked to furnish, not general opinions, but hard facts, to an inquirer, or a committee of inquirers, out of which hard facts trustworthy conclusions might eventually be extracted.

Similar in some respects to the problem of *housecraft* in girls' schools is that of the *manual arts* in boys' schools. Is this department of boys' instruction a thing in itself, or should manual employments rather be regarded as a mode of expression, and therefore as organically connected with the rest of the

curriculum? If the latter (as most people who have thought about it would say), do we not need abundant experiments, in which the manual instructor gathers suggestions from the rest of the staff, and carries them into effect, so far as the principles of construction allow of this being done?

A bigger problem than any of the preceding, and one which to some extent includes them all, and many more, is that of *vocational education* in the later years of school life. The word "vocational" (the purist must forgive the adjective) is associated in the minds of many with all that is trivial and sordid. For them "vocational" and "liberal" are, as a matter of course, mutually exclusive terms. They recognise no common ground, no overlapping area. Not only do they despise the practically useful, but they actually glory in the inutility of much of what they teach, defending it on the plea that it affords a valuable "mental discipline." Anyone who suggests that (for example) no hard and fast line need be drawn between pure and applied science is accused of "tinkering the curriculum with occupational intent." It is assumed that an education which does not fit out the pupil for a possible university career is no education at all. Unconsciously the position is held that the secondary-school master and the high-school mistress (excellent specimens of human-kind, we should all allow) are the ideals to which every boy or girl should be trained to approximate. Meanwhile, the parent and the pupil are apt to disagree with all this, and so we find it difficult to keep boys and girls over fifteen in the secondary schools. The parent may be narrow, but possibly the school is mistakenly broad.

What we appear to need is definite experiment in devising curricula which shall include "things useful to be known," but shall treat those things in a broad and liberal spirit. In so far as secondary schools are bound by the requirements of existing examinations, the field of experiment is restricted. But in every large school there are many pupils who, though by no means dolts, "can't pass exams.," *i.e.*, with respect to whom the existing system is an admitted, and sometimes a ghastly, failure. Might not these pupils, at any rate, form the subjects of what might turn out to be exceedingly important experiments in reformed curricula? If such experiments were tried in many of our large secondary schools, and especially if the experiments were placed in the hands of capable and thoroughly sympathetic teachers, conclusions of far-reaching importance might ultimately be reached.

(To be continued.)

LATIN PLAYS.

AN ACCOUNT OF SOME WORK AT THE PERSE SCHOOL, CAMBRIDGE.

By R. B. APPLETON, M.A.
Perse School, Cambridge.

ONLY those who have actually introduced the use of simple Latin plays into their teaching can realise the extent to which a piece of dramatic work grips the boyish mind. In a term during which a form is acting a play (or plays) one may hear quotations, sometimes apt, more often joyously irrelevant, bandied about the school corridors during the intervals and after school; and the present writer has even heard the words of Horace and Catullus come floating in through his study window from the lips of passing boys who happened to be taking the parts of poets in a play which then formed part of a fourth form's school work.

Anything which will so extend a boy's association of a language beyond the classroom is good; and the results of such an extension are far more intensive than might be supposed. This may be proved in a score of different ways—overtake a boy walking home from school and talk to him in Latin and he will respond with alacrity, or by a dozen little conscious or unconscious devices so associate yourself in a boy's mind with things Latin that the very sight of you suggests Latin to him, and you will find that you have got for your actual class purposes a wonderfully increased interest and attention such as only the power of personality can command.

In this connection, those who have time and wish to be pleasantly surprised may try the experiment of announcing that they will be "at home" to Roman boys at tea-time on a certain day in every week, and they will find that they are getting in a very enjoyable extra Latin period per week. Conversation will flag at times, of course (does it not at less classical tea-parties?), but banalities will not abound, and guessing games, and "proverbs," and aenigmata out of the "Scriptor Latinus"¹ will tide over the most awkward silences.

But at present we are concerned with one particular way of catching and developing a boy's interest in Latin, namely, by means of plays. These may be of two kinds:—

- (1) finished plays written by the master and dictated to the boys; or
 - (2) dramatic improvisations by the boys themselves.
- (1) These must at present be dictated (which is by no means an unqualified waste of time), for the simple reason that, so far as the present

writer knows, nothing suitable is as yet obtainable in printed form.² What one needs is a Latin play interesting to boys between the ages of twelve and fifteen years, and for this purpose Romulus and Remus, Tiberius Gracchus, Brutus and Coriolanus are complete failures. The subjects must be frankly modern, or at any rate of living boyish interest. Suitable material will be found in Apuleius, in some of the vivid scenes from Juvenal, or in any of the Roman history stories provided that they be given a vivid interest, such as may be done by making one of the characters appear to a modern boy in a dream, or by some similar device. But the best material will be found in the master's own imagination; should this give way beneath the strain, it can be revived by a perusal of the "Controversiae" of the elder Seneca, where some useful material will be found along with much that is unfortunately unsuitable for school purposes.

After these plays have been dictated and explained *pari passu* in Latin by the master, the parts must be allotted and then learnt by heart by the respective characters. The present writer has never found it necessary to grant actual homework-time for this purpose. When the boys know their parts they will come and ask that they may be allowed to perform the play in class, whereupon those boys who have no parts form the audience. The play may also be used for speech-day purposes, or inserted as an item in a school concert or other show. In this case costumes will be necessary, but these are easily made by taking a double piece of calico, cutting a hole at the top for the head and stitching up the sides with the exception of a portion towards the top for the arm-holes; the garment is then caught up round the waist with string so as to form a fold. The result—as will be seen from the inserted photograph—is quite a comely chiton. Sandals, which even school governors can be induced to acquire gradually, will be made by any competent cobbler for about 3s. a pair.

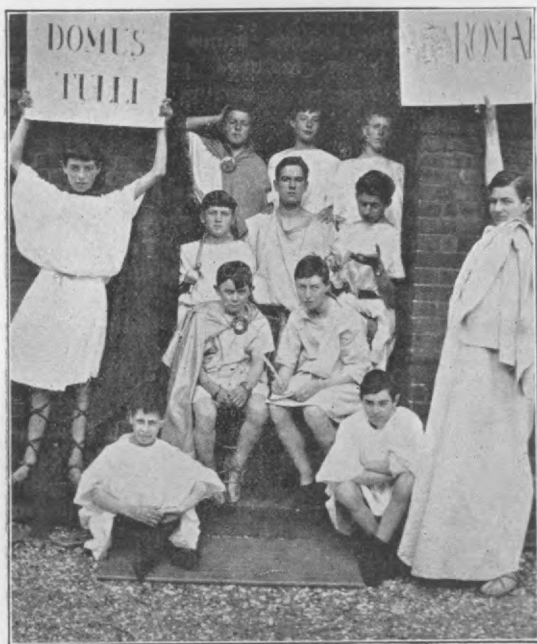
(2) The boys will soon suggest writing plays themselves. This may be done either by individual boys, when the play becomes a rather feeble example of our class (1), or by the whole form, which is the method to which we wish to refer under this second class. The process is simply to dramatise in class a piece of Latin which has been previously read by the form; then, after the acting of such a piece, the scene is written out by each boy in the class as his homework. As each boy must write out, not only his own words, but the whole scene, he must be very much awake during the acting

¹ Published in England by D. Nutt, 57-59 Long Acre, W.C.

² A small volume of Latin play texts, which have been found useful in the Perse School, will shortly be published.

period, for he has both to improvise suitable words for his own part and to attend carefully to what other boys are saying. Such a play may extend throughout a whole term, if it be confined to one period a week, and may assume a form which would astonish a dramatic critic.

Each boy's play will, of course, differ more or less in phraseology from his neighbour's, though all the versions will be upon the same subject. It will, however, be found that there is sufficient similarity between the different versions to render the acting of past scenes possible, if it is desired to do this; though it will generally be found that the boys prefer to go on to dramatise a fresh section of the work. And though work of this kind is inferior as a play to the kind of work we have called class (1),



it has many peculiar advantages. For example, it has wonderful effects in the way of giving boys freedom of expression. Now one of the difficulties of the oral system is to make the boys speak. Unless the master is careful he will find that, while he is speaking Latin himself, the boys almost confine their conversation to a frequent "non intelligo," or a rarer "intelligo." But these dramatic improvisations, as we may call them, give the boys just what they want—a subject with which they are familiar and an incentive to speak about it. They themselves take the initiative, and are no longer passive, but active.

But not only does such a method make the boys talk, it also helps them to think in Latin. The reproduction of a story is an excellent thing at a certain stage in the oral method,

but too much depends on mere memory work; whereas, by this dramatising of a story, the boys derive from what happens in class an impression in which words and gestures are associated in one mental affection. Just as when we adults see a play in the theatre we realise the "atmosphere" of that play more than when we merely read it at home, so, for a boy, acting helps to drive home the impression, and, as no word of English is heard, that impression is not only a Latin-word impression but also a Latin-thought one.

The actual procedure employed under this method will be clear from the following account of what has been done. A play was based upon the adventures of the Argonauts, as described in Ritchie's *Fabulae Faciles*, which was the fourth-form reading-book for three periods a week. One period was set apart for acting, at the beginning of which the section of Latin to be dramatised was read quickly through. Then those boys who had to take part stood out, and if any new characters were subsequently required they were allotted to further boys. The master then asked what would be the first scene, how it should begin—and such like questions. No directions were given, but everything was left to the initiative of the boys; in fact, all that the master did was to correct grammatical mistakes and make the speaker who had gone wrong repeat his words correctly. It was very rarely that the master objected to the course the play was taking, and by asking questions made the boys suggest an improvement.

Only two short scenes were generally performed in one period, since, after the words and actions had been determined, they had to be gone through again, without interruption from the master, in order that each boy might have a clear impression for the writing out of his own version of the scene for homework. The freedom with which the story was handled may be seen from the following short sections of the narrative used, to each of which a dramatic version is appended in its uncorrected form. No corrections at all have been made in the boys' work, but all the mistakes are printed exactly as made. In order to show more of the work done the versions of different boys of different pieces of Latin have been chosen rather than several different versions of one piece of narrative.¹

NARRATIVE.—"Erant olim in Thessalia duo fratres, quorum alter Aeson, alter Pelias appellatus est. Horum Aeson regnum obtinuerat; at post paucos annos Pelias, regni cupiditate adductus, non modo fratrem suum expulit, sed etiam in animo habebat

¹ The boys' names are represented by letters, their ages by figures in brackets after the letters. They have been studying Latin for two years and one term.

Jasonem, Aesonis filium, interficere. Quidam tamen ex amicis Aesonis, ubi sententiam Peliae intellexerunt, puerum e tanto periculo eripere constituerunt. Noctu igitur Jasonem ex urbe abstulerunt. . . .

DRAMATIC VERSION. A. (14.10). REGIA PELIAE.

Pelias. Pelias sum, et in regia mea sedeo. Jam expuli Aesonem, et nunc rex sum. Sed Jasonem timeo, ne regem se faciat. Oportet me, igitur, illum interficere sine mora.

Amicus 1. (Secundo amico) Audivisti-ne?

Amicus 2. Audivi.

Amicus 1. Quid oportet nos facere?

A. 2. Oportet nos Jasonem servare.

Pelias. Ego Jasonem quaeram [exit Pelias, et exeunt milites atque servi; amici manent].

A. 2. Nescimus quid faciendum sit.

A. 3. Amici eramus Aesonis, nunc itaque oportet nos amicos esse Jasonis. Res facilima est eum servare. Oportet Jasonem ex urbe noctu ire, et tum nos Peliae dicamus Jasonem mortuum esse.

A. 1. Nunc abeamus.

(*Via in urbe.*)

(Jason obviam iit amicis suis.)

Jason. Salvete, amici!

Amici. Salve, Jason.

Amicus 3. Magno in periculo es.

J. Quid dixisti? Quale est periculum?

A. 2. Pelias vult te interficere.

J. Oportet me abire igitur sed nescio quo modo possim.

Narrative (continuous with former piece).

et, quum postero die ad regem rediissent, ei renuntiaverunt, puerum mortuum esse. Pelias, quum haec audivisset, etsi revera magnum gaudium percipiebat, speciem tamen doloris praebuit, et, quae causa esset mortis, quaesivit. Illi tamen, quum bene intelligerent dolorem eius falsum esse, nescio quam fabulam de morte pueri fixerunt. Post breve tempus Pelias, veritus ne regnum suum tanta vi et fraude occupatum amitteret, amicam quendam Delphos misit qui oraculum consuleret.

DRAMATIC VERSION. B. (14.5). REGIA PELIAE.

Pelias. Nescio ubi sit Jason, Aesonis filius. Eum invenire non possum. Volo eum occidere, namque eum timeo. Scitis-ne ubi sit, milites?

Milites. Nescimus, domine. [Amici intrant.]

Amicus 1. O! Domine, audivimus Jasonem mortuum esse. Latrones eum occiserunt postrema nocte.

Pelias (Submissa voce). Maxime gaudeo.

Amicus 2. Nuntius dixit mihi eum in speluncam iactum fuisse.

Pelias. Me miserum! Eum amabam ut filium meum. Oportet me vestes mutare!

A. 3. Nunc debemus abire ut cadaver inveniamus, atque sepeliamus.

Amici. Vale domine! [Exeunt.]

Pelias. Vereor ne regiam meam amittam. Nescio quid faciendum sit. Puto me debere miles quidam iubere Delphos se conferre et oraculum consulere. Davus, hic veni: abi sine mora Delphos, et oraculum consule.

Davus. Statim abibo, magister.

It will be noticed that although this boy uses a nominative after a transitive verb, he has put in one or two good things, such as "vestes mutare" and "se conferre."

Narrative.—Ille igitur quam celerrime Delphos se contulit, et, quam ob causam venisset, demonstravit. Respondit oraculum, nullum esse in praesentia periculum: monuit tamen Peliam, ut, si quis veniret calceum unum gerens, eum caveret.

DRAMATIC VERSION. C. (14.4).

Amicus Peliae. O! Apollo, oraculum a te peto ut sciam quid faciendum sit. Quia Pelias me misit ut te consulam, nam timet ne amici Aesonis regnum suum occupent.

Oraculum. Dic ei nullum esse in praesentia periculum, sed homo unum calceum gerens cavendus est.

Amicus P. Gratias tibi ago quam maxime, sed redibo ad regiam Peliae.

Narrative.—Post paucos annos accidit ut Pelias magnum sacrificium facturum esset: nuntios in omnes partes dimiserat, et certum diem conveniendi dixerat.

DRAMATIC VERSION. D. (14.5).

Severus. Veni ad oraculum et Apollo imperavit tibi ut hominem, unum calceum gerentem, caveas.

Pelias. Gratias dis agam. (Servis) Venite! Audite! Abite in omnes partes ut diem constitutum enuntiatis populis. Intellegitis-ne?

Servi. Intellegimus, domine, hoc statim faciemus. [Exeunt omnes.]

Narrative.—Die constituto magnus numerus hominum undique ex agris convenit: inter alios autem venit etiam Jason, qui a puero apud Centaurum quendam vixerat. Dum tamen iter facit, calceum alterum in transeundo nescio quo flumine amisit. Jason igitur, quum calceum amissum nullo modo recipere posset, altero pede nudo in regiam pervenit: quem quum vidisset, Pelias subito timore affectus est; intellexit enim hunc esse hominem, quem oraculum demonstravisset. Hoc igitur inquit consilium. Rex erat quidam nomine Aeetes, qui regnum Colchidis illo tempore obtinebat. Huic commissum erat vellus illud aureum, quod Phrixus olim ibi reliquerat. Constituit igitur Pelias Jasoni negotium dare ut hoc vellere potiretur: quum enim res esset magni periculi sperabat eum in itinere periturum esse: Jasonem igitur ad se accessit, et, quid fieri vellet, demonstravit. Jason autem, etsi bene intelligebat rem esse difficillimam, negotium libenter suscepit. Quum tamen Colchis multorum dierum iter ab eo loco abesset, noluit Jason solus proficisci; dimisit igitur nuntios in omnes partes, qui causam itineris docerent, et diem certum conveniendi dicerent. Interea, postquam omnia, quae sunt usui ad armandas naves, comportari iussit, negotium dedit Argo cuidam, qui summam scientiam rerum nauticarum habebat, ut navem aedificaret.

DRAMATIC VERSION. E. (15.3).

Populi. Venimus ut sacrificium videamus.

Pelias. Oportet nos dis gratias agere. Volo,

igitur, sacrificium facere. O Jupiter, omnipotens, maxime deorum, praeclarum sacrificium. . . .
[Jason intrat.] Sed quis hic venit.

Amicus Peliae. Ecce! Unum modo calceum habet.

Pelias. O me miserum! hic est Jason quem oraculum dixit venturum esse. [Jasoni] Quid vis tu? Jason. Venio ut sacrificium videam.

Pelias. Sacrificium iam factum est. Sed si vis dabo tibi negotium suscipiendum.

Jason. Quale negotium?

Pelias. Volo te abire ad colcida ut vellus aureum mihi referas.

Jason. Ibo sed primum oportet me navem aedificare in qua proficiscar. Abibo ut quaeram artificem qui summam scientiam nauticarum habet.

Pelias. Abi ut quam celerime facias.

Argus. Aedifico navem, sed non efficere ut clavi intrent.

Jason. Perfecistine? [Jason intrat.]

Argus. Non dum perfeci. *Jason.* Festina, namque oportet me proficisci duobus abhinc diebus.

Argus. Perficiam eras. *Jason.* Quot homines oportet me invenire?

Argus. Quinquaginta.

Jason. Eo igitur ut eos quaeram.

Two more examples are added, taken from a later stage of the story.

NARRATIVE.—Argonautae ad flumen Phasim venerunt, quod in finibus Colchorum erat. Ibi quum navem appulissent et in terram egressi essent, statim ad regem Aetem se contulerunt, et ab eo postulaverunt, ut vellus aureum sibi traderetur. Ille quum audivisset, quam ob causam Argonautae venissent, ira commotus est, et diu negabat se vellus traditurum esse. Tandem tamen, quod sciebat Jasonem non sine auxilio deorum hoc negotium suscepisse, mutata sententia, promisit se vellus traditurum, si Jason labores duos difficillimos prius perfecisset; et, quum Jason dixisset se ad omnia pericula subeunda paratum esse, quid fieri vellet ostendit. Primum iungendi erant duo tauri speciei horribili, qui flammam ex ore edebant; tum, his iunctis, ager quidam arandus erat, et dentes draconis serendi.

DRAMATIC VERSION. F. (15). REGIA AEETIS.

(Jason considetur et Argonautae intrant.)

Jason. Salve, O Aetes, venimus ut vellus aureum auferamus.

Aetes. Nunquam id tibi dabo.

Jason. Pelias me misit ut vellus aureum auferret et nisi ego id retulero me occidet.

Aetes. Nunquam ego tibi dabo igitur abite e finibus meis sine mora.

Jason. Succurrite, Argonautae. Vi et armis auferendum est.

Aetes. Noli irasci. Ego tibi dabo si primum duos labores perfeceritis.

Jason. Paratus sum ad omnia pericula subeunda.

Aetes. Primum oportet te tauros duos ferocissimos iungere. Hoc facto oportet te arare agros et tum serere draconis dentes. Nunc cape dentes.

Jason. Conabor hoc negotium bene facere.

NARRATIVE.—At rex Aetes, ubi cognovit Jasonem laborem propositum confecisse, ira graviter commotus est: intelligebat enim id per dolum factum esse, nec dubitabat quin Medea auxilium ei tulisset.

DRAMATIC VERSION. G. (12.3).

Jason. Salve Aetes, iam iunxi tauros et nunc venio ut mihi dicas ubi sit vellus aureum.

Aetes. Non dicam tibi, nam puto aliquem te adiuvisse. (Servo) Arcesse Medeam, filiam meam. (Servus exit et rediit post breve tempus cum Medea.) Aduvistine Jasonem?

Medea. Ita, dedi eo unguentum, sed nunquam iterum faciam.

Aetes. Jason, abi, atque si iterum invenero te in finibus meis occidam te. Tu, Medea, i ad cubiculum tuum. [Exeunt Jason et Medea.]

THE QUESTION OF SEQUENCE IN GEOMETRY.

By CHARLES DAVISON, Sc.D., F.G.S.

THE recent discussion on the question of sequence in geometry is of great interest, though inconclusive on the most important points. The utmost divergence of opinion is manifested. One writer would teach geometry merely for the sake of the truths imparted; another regards it as a branch of logic. According to one, the reform of ten years ago has landed us in a state of chaos; another considers that the same change has brought a priceless freedom. Some regard a standard sequence of propositions as desirable, if not essential; others dread a loss of freedom that would be entailed by the shackles of any system. A few would look with favour on a return to Euclid's sequence, in part if not altogether; others would consider such a step as retrograde and detestable.

My endeavour in the present paper will be to evolve some system out of the very various opinions expressed, to describe the arguments that have been offered for and against the adoption of a standard sequence, with the replies which have been made to each by the other side. It is no part of my design to state to what extent I agree with any of the arguments which have been brought forward. I have merely tried to give each argument and the reply to it as far as possible in the words that have been used in the correspondence of the last four months.

I. SHOULD THERE BE A STANDARD SEQUENCE OF PROPOSITIONS?

The main question discussed in the correspondence is whether there should be a standard sequence of propositions, so that, in proving a new theorem, we may know what previous theorems may be referred to, or, in solving a deduction, what propositions may be taken for granted. I will first give the reasons

that have been offered in favour of the sequence. The most important, no doubt, is the present state of the teaching of geometry, a state that is due partly to the rapidity with which the change was made, partly to the variety in aim which teachers have set before themselves and to the different methods employed in consequence, very largely to the multiplicity of text-books. The condition has been described as one of chaos. We have had ten years of freedom, freedom to experiment, to adopt any course we pleased so long as it appeared to be a logical course, and yet the best way of teaching geometry has not been evolved. According to one teacher, the results of the reform movement have so far been deplorable, and even advocates of the reform, who prize the freedom we have won, are constrained to admit that their expectations have not been realised.

If the teacher is bewildered by the variety of methods and text-books, the difficulties of the examiner may be readily understood. They are so obvious that it has been assumed by some correspondents that the return to a sequence is desired chiefly on his account. The examiner alone would evidently receive from all sides a very brief shrift. He exists merely to test our work, no longer in any way to guide or restrain it. If the newer methods of teaching give him more trouble than before, then he must be paid more highly. But, in examinations, the examiner is not the only person to be considered. The examinee must have justice done to him. He may be a candidate for an entrance scholarship or for admission to a great school. There are clearly cases in which it would be difficult to apply the formula that any proof will be accepted which appears to form part of a logical system. Take, for instance, the question: Show that two straight lines are parallel if a transversal makes a pair of alternate angles equal. In an examination, the marks to be assigned to such a question should depend chiefly on the difficulty, but partly on the length, of the proof. Now, a candidate might give the proof by rotation and superposition, one of the most difficult in the whole course in elementary geometry, and the finest test of a teacher's powers. Or, he might give the old Euclidean proof, which is shorter and much more simple. Or, lastly, he may have used a text-book in which parallel straight lines are defined as those which have the same direction, and in which the desired result is attained by a brief description. Here it is not a question of trouble to the examiner, but of insuring equal justice to all the candidates. Is it possible to mete out that equal justice?

Examinations, again, are not the only issue in which the pupil deserves consideration. Few boys are so fortunate as to spend their whole geometrical career at one school; a large number have to pass at least from the preparatory to the secondary school; many have to be transferred from one secondary school to another. With every removal, a pupil may have to undergo a change of method, to study from a text-book in which the definitions, axioms, and sequence are all different. The resulting waste of time may be lamentable, and it is held that it might to a great extent be prevented if there could be some uniformity in the choice of definitions and axioms and in the order (not the method) in which successive theorems are to be proved.

To sum up, it is held that the abolition of Euclid has brought chaos where order formerly reigned, that it is difficult to assign marks fairly in examinations, and that pupils suffer in their transference from one school to another.

Before giving the arguments against the adoption of a sequence, it may be well to state briefly how the above reasons in favour of a sequence would be met by those who take the opposite view.

It is admitted that the question of sequence is chiefly of importance in the first book. Whether areas should precede the circle, or proportion precede both, is of comparatively little consequence, for each can be treated to a great extent independently of the others. It is suggested, then, that the whole difficulty of sequence might be disposed of by merely treating the propositions of the first book informally, by establishing them independently by appeal to intuition or experience, so that they would become essentially postulates. So far as regards the transference of pupils from one school to another, the question of sequence would then disappear. In examinations, the theorems would never be set; and this, it is urged, would be an improvement. Indeed, it is held that the lack of a uniform sequence, in so far as it restrains examiners from setting propositions, makes for good teaching.

The principal arguments against the establishment of a sequence are its interference with the freedom of the teacher, and the fact that a sequence has been found unnecessary in other subjects. The convenience of the examiner is much resented, but it is not further referred to here, because, as shown above, the examiner is not the only person concerned, and also because the first impression that a standard sequence was proposed for the sake of the examiner proves to have been unfounded.

The interference with the freedom of the teacher is an argument that surmounts all others. It is held by some of our best teachers that such interference would be fatal to good work. By forcing upon schools a rigid sequence of propositions, the efficiency of the teaching would be seriously impaired; it would lead to stereotyped teaching, and to a deadening of thought. It would discourage experiments, and without experiments there can be no progress. The ideal system of teaching geometry has not yet been discovered. Our freedom from the shackles of Euclid is too recent. Moreover, our views are subject to change, and a generation hence the fixity would be detrimental, even though a standard sequence might be devised that would for a time meet with general approval.

Again, there does not appear to be any reason why geometry should be confined by a strict sequence any more than other branches of mathematics or science. There is an orderliness of treatment, no doubt, in every subject, but in arithmetic, algebra, and trigonometry, not to speak of physics or botany or any other science, we are untrammelled by a standard sequence. What is the inherent difference between synthetic geometry and other branches of mathematics which requires a standard sequence for one and not for the others? Is there any reason beyond the fact that we have always been used to a sequence?

To the former of these arguments, the advocates of a sequence reply that the sequence contemplated is not one that will limit the freedom of teachers. It is not to be a compulsory sequence for the use of examiners, but merely for the guidance of teachers who are unable to see their way clearly owing to the diversity of methods in use and the multiplicity of text-books. Again, to make geometry merely an experimental science, as one suggests, would indeed be to fetter it, imposing upon it the limitations of our senses and powers of observation and measurement. Geometry is an abstract science, and no progress can be made in it without logic.

In reply to the second argument it is urged that geometry differs from other branches of mathematics and science in two respects. It has always been the custom to teach geometry on a deductive basis to a far greater extent than other subjects. No one teaches algebra, for instance, by deductive methods, except to a very limited extent. It has also been usual to divide the subject into watertight compartments called propositions, each depending on one or more of those which precede it, and therefore requiring a more or less definite sequence.

2. SHOULD THE STANDARD SEQUENCE BE EUCLID'S OR ANOTHER?

If it may be assumed that some standard sequence is desirable, the next question to be considered is whether Euclid's sequence should be adopted, or some other widely-recognised sequence, or whether some authoritative body should endeavour to collect opinions and to base on them a new syllabus.

It has been suggested that Euclid's sequence should be restored, though not slavishly. There is no need to treat it as a verbally inspired document. Some propositions would certainly have to be omitted, and others not in Euclid would as certainly have to be included. No one claims that Euclid's sequence is ideal. But it is widely known, most of his modern rivals are lax in their definitions, and, even if his sequence is not all that can be desired, it is at any rate better than none at all. It is pointed out that the abolition of Euclid has not carried with it the abolition of the watertight compartments known as propositions. The main effect of the change is that the propositions have been re-arranged with different numbers; in other words, it has been the loss of the one sequence that was well understood.

On the other hand, it is urged that it is doubtful whether Euclid's sequence is the best, and whether it is adapted to the modern methods of teaching geometry. It is felt that the restoration of Euclid's sequence might revive some of the worst of the old abuses, such as the unintelligent learning of propositions without the ability to apply the results. The strongest argument against the re-introduction of Euclid's sequence is perhaps his neglect of hypothetical constructions. Euclid imposed on himself the restriction that before assuming the existence of any line (such as the bisector of an angle) he must first give the construction for the line and prove its validity. And this restriction influenced the order of his propositions. Why, then, retain a sequence determined by a restriction which no longer exists?

If the sequence of Euclid fails to secure general support, it seems obvious that no other at present in the field will meet with greater success. There remain two alternatives before us. One is the proposal, which is not received with universal approval, to appoint some authoritative committee on which teachers of geometry should be strongly represented. Such a committee, it is thought, might evolve a scheme that would be so widely accepted that text-books would have no chance of publication, or, at any rate, of survival, unless they were founded on the lines of the scheme. It is suggested that the first thing to be done is

to settle the definitions and axioms; that then it will be easy to arrange the theorems logically in natural groups, after which the theorems will practically arrange themselves in a natural and orderly sequence. The other plan is to prolong our present state of freedom in the hope that some new methods may be developed, some new principle of classification thought out, or some new text-book published that will command universal, or all but universal, assent.

THE USE OF PRACTICAL EXERCISES IN THE TEACHING OF GEOGRAPHY.

By J. MARTIN, B.Sc.

Senior Geography Master, Coopers' Company's School, London.

I AM glad of the opportunity to sum up in a judicial way the opinions expressed in the symposium on the above subject published in the June issue of *THE SCHOOL WORLD*, and to enumerate the conclusions to which a study of the evidence appears to lead. The temptation to put myself in the witness-box and make a further contribution to the evidence will prove, I fear, too strong to be resisted: which is perhaps only to be expected in so controversial a subject.

Ever since what may be termed the "Geography Revolution" there has been among teachers and educationists generally considerable vagueness and no little disagreement, not only as to the place and utility of practical exercises in the teaching of geography, but actually as to the scope and aims of the subject itself, and it is well that some contributors have added to their remarks either by a definition of geography or by emphasising that aspect of the subject which it should be the aim of the teacher ultimately to present. Such a definition must affect greatly the value of the remarks of each contributor. Our attitude towards practical exercises, as also our success in pursuing that method, must be determined by what is our conception of geography as a whole: slavish imitation of a set syllabus or series of suggestions must in this subject especially lead to much hopeless waste of effort, unless we have an ideal to aid us in the necessary process of selection, and to give a unity of purpose to our work.

SCOPE OF GEOGRAPHY.—To summarise the views expressed, it would be quite sufficient to quote Miss Reynolds, who thinks that geography is needed as "a culture subject for training imagination, giving a broad, accurate outlook on the world, and illustrating the interrelation between scientific and humanistic studies." In a word, the *humanistic* aspect is to be the final one, and, as Mr. Wethey says,

the tabulation of records, estimation of heights, &c., however estimable in themselves as mental studies and as a training in geographical method, must not be allowed to cloak what, after all, is the real issue, viz., "the effect of these tabulated phenomena on human life, and the interaction existing between man and his environment." Mr. Wallis, Mr. Fairgrieve, and Mr. Jones are equally emphatic in warning us against so labouring the process, which scientifically is merely incidental, that we neglect the result, which is permanent and paramount. The urgency of these warnings cannot be too strongly impressed upon teachers if they are to progress rationally and profitably, and not wander off into by-paths, with the risk, as Mr. Heaton says, of eventually getting nowhere.

PRACTICAL GEOGRAPHY.—When we consider the evidence as to what is the place and use of practical exercises in the teaching of geography, we are met with a divergence of opinion, not so much regarding the aim, as the scope. To express it broadly, practical geography is a discipline rather than a succession of exercises, the cultivation of a geographical attitude of mind by bringing the pupil into first-hand contact with facts, which he must either observe for himself in the field, or determine by an analysis of records indoors, and from which he must deduce fresh facts or geographical principles, to be used, in turn, as the bases of other investigations. To quote Mr. Fairgrieve:—"Practical geography is a method, rather than a series of exercises—and, in particular, it is a method of gaining information by other faculties than memory, so that the important philosophy of geography may be understood." There is considerable agreement on these points—the method and the attitude of mind—the power to think geographically—the successful production of which Mr. Daniell considers to be the evidence of sound teaching.

So much for the aim. Regarding the scope of practical geography, opinions differ. Several contributors, e.g. Mr. Grist, Dr. Brown, Miss Reynolds, and Mr. Thurston, are disposed to limit the term solely to work done "in the field," and, of course, to the consequent reproductive work indoors. The two former teachers also venture the opinion, which seems to be shared by Mr. Daniell, that too much of the matter of modern courses in geography is measurement, physics, and other work not geographical at all. In so far as these opinions are obtained from a perusal of some modern text-books, I feel that I can concur if only because the authors have not safeguarded the aimless teacher, who, it is to be feared, may work through all the exercises,

using the book as his syllabus, instead of selecting problems here and there to illustrate and supplement a syllabus of his own.

Other contributors—notably Prof. Lyde, Mr. Wallis, and Mr. Fairgrieve—give to the term “practical geography” a much wider meaning. In their view any exercise is practical work which is so devised as to compel thought: a map to illustrate a point in a lesson, modelling of forms viewed in the field, the summarising of a geographical area, establishing the south point, interpretation of a map, deduction of a principle from the synthesis of statistics, and so on. All such exercises are considered of the essence of practical geography. It will be seen from a study of this list, taken at random, that there is nothing narrowing or confining in this conception of the term; it embraces every aspect of geography, and applies to every phase of the teaching—the point to be observed is, that each exercise must have its proper place in the geographical scheme, and that, while it is an end in itself, “it must also carry on the argument.”

It will be useful at this point to deal with the remarks of the contributors under the three heads into which practical geography seems to be divided:—

(1) OBSERVATIONAL WORK IN THE FIELD.—This is considered essential by all—the routine to be followed differing with the age of the pupil and his stage in the course. In the case of young pupils the aim suggested is the observation of forms and of the effects of the various agents of change. Prof. Lyde says there is no alternative to this as a basis of geographical ideas. For older pupils, other problems dealing with the economics of the area as well may be worked out, and Mr. Thurston has made a few capital suggestions as to what may be done. Whatever observations are made on these excursions, which, from considerations, we presume, of the timetable, it is generally suggested should not be frequent, they should be thoroughly worked out indoors, so that the teacher may satisfy himself that the class can picture the forms they profess to have seen. Indeed, Prof. Lyde asserts that observational work is of little value unless it leads at once and directly to reproductive work indoors. This reproductive work may take many forms, and it is interesting to note that only two contributors make any reference to modelling, if we except Mr. Chisholm, who has had no experience of it, and doubts its expediency. One is tempted here to hazard the opinion that this silence is eloquent of much heart-burning and many wasted hours. Just as Mr. Wallis and Mr. Jones insist that there is no geographical object to be gained in

continuing an exercise after familiarity has been gained with the principle involved, so it would seem there is no advantage to be gained by modelling if a true—or, at least, equally true—conception of forms can be obtained by other and quicker methods.

(2) PRACTICAL AND OBSERVATIONAL WORK WITH INSTRUMENTS.—These exercises fall under various headings, but in the bulk have to do with map-making and the study of climate, and we shall examine the remarks of the contributors in that order.

(a) *Map-making* (Plane-tabling and Contouring).—If we except Mr. Young, whose boy scouts pursue it as a game in their spare time, there is no one who strongly advocates this branch of practical geography, and few mention it at all except (as a rule) to express a fear that there is a tendency to turn out youthful surveyors rather than youthful geographers. Mr. Jones and Mr. Young sound the warning note that plane-tabling and contouring cost money and involve much time. A reconsideration of what we believe to be the philosophy of the practical geographer—“the struggle towards reality,” “the determination to get into first-hand contact with facts,” to use Mr. Richardson’s words—helps us to a reasonable view in the matter. “The map,” says Mr. Jones, “is still the geographer’s chief instrument,” so that plane-tabling and contouring would clearly seem to be a translation of the geographer’s creed into action. The evidence on this subject condemns the expenditure of much time on it—indeed, a demonstration by the teacher would almost satisfy the requirements.

(b) *Climatic and Solar Observations*.—These consist in keeping daily records of the weather and making graphic representations. Solar observations would show the daily and annual course of the sun across the heavens. In all cases the simplest apparatus is recommended, for, as Mr. Daniell says, “best thinking usually results where home-made apparatus is employed.” Exercises of this kind seem to have the approval of all contributors, but it is rather to be regretted that sufficient emphasis has not been laid on the interdependence of these data: it is not always made clear, for instance, that the reading of a barometer and the plotting of the pressure curve are a useless exercise unless and until the results are correlated with those of other observations.

(3) INDOOR WORK.—Hitherto we have discussed those practical problems which represent only a phase of the teaching, and, from their nature, involve only a small fraction of a geography course. Under the present heading we shall deal with problems applicable in varying degree to the whole geography

scheme, but more especially to the later years when a pupil is being trained to apply the knowledge which he has been steadily acquiring in this and other subjects.

(a) *Statistics and Records*.—So far as it can be gathered from their articles, the aim of those who use statistics is to place the geographic content of a country before a class and accustom them to deduce therefrom geographical principles; it offers a close parallel to the practice of taking pupils in their earlier stages to view an expanse of country. It is, in short, a method of studying regional geography, and fears are expressed that it is apt to be overdone and become mechanical—especially in the case of such exercises as the compilation of graphs representing the quantitative aspect of the geography of an area. Perhaps these fears have their origin in the absence from the textbooks of practical geography of the *human* note, which, of course, the teacher should supply. It would seem that criticism is levelled only against the *misuse* of statistics. Mr. Alford Smith offers a corrective:—"A competent teacher," he says, "when considering the subject of his lesson, decides what points can be driven home best by means of such exercises, and he chooses those most suited to his purpose." Miss Reynolds, too, has a pointed remark on the matter: "Any set syllabus for practical work, I fear, is more likely to hinder than aid it." So long as the teacher has a scheme and the exercises are selected to illustrate and supplement the lesson, or to form the basis of a lesson, the contributors have no adverse criticism to offer.

(b) *Mapping and Map-reading*.—The need for constant map study is strongly insisted upon; a pupil should be able to visualise an area and to give a correct interpretation of the map. Ordnance maps, strangely enough, are rarely mentioned, although references to contours show that writers evidently had them in mind. Country schools are especially advised to study their home area along with the local ordnance map. Cartographic representation of geographical distributions, too, is recommended as an easy and effective way of presenting and illustrating the quantitative basis of geography—although Dr. Rudmose Brown, while recognising that such exercises are an important part of a geographer's training, thinks they are unsuitable for school children.

EQUIPMENT.—One feels that many inquiries into the practice and methods of the new geography have been prejudiced by a fear that the cost and variety of the equipment necessary are too great to be entertained. No one who has read the evidence of this symposium can labour any longer under this delusion. A special laboratory is, of course, a desideratum, and the

counsel of perfection, but it is not insisted upon by anyone. Most class-rooms, it is maintained, can be suitably adapted for the purpose at little cost. The great advantage of such a room is held to lie in the fact that everything is ready at hand—both for what is actually needed in the lesson and for the side-issues that invariably crop up. The maps would be kept there in large-sized drawers and cupboards, also the collection of specimens, the geographical library, the lantern, and so on. It is suggested by Mr. L'Estrange that the room should be in charge of the senior geography master, who could send round sets of apparatus at a moment's notice to other masters taking the subject. Dr. Wilmore invites inspection of his own geography laboratory, and it would be useful to ascertain the names of other headmasters who would be willing to grant a similar privilege.

QUESTIONS ARISING OUT OF THE SYMPOSIUM.—Where contributors are writing simultaneously there is always a possibility that important aspects of the matter in hand may be partially overlooked, so that no conclusion can definitely be drawn from the evidence put forward. Several such important matters have been raised, with regard to which further discussion is desirable, and I venture to direct attention to them, in the hope that in future issues it may be possible to publish authoritative views that may be of service to all who are concerned in the teaching of geography.

(a) *Correlation*.—This has been dealt with briefly by Mr. Heaton only, and there are, here and there, a few allusions to the subject in the remarks of others. It has been suggested, e.g. by Dr. Brown and Mr. Grist, that much of the so-called practical geography is not geographical at all, and doubts have been expressed as to the fitness of such exercises in a geography course. Of course, in endeavouring to arrive at a reasonable conclusion, we have to remember that geography is essentially a correlating subject, and that, as Mr. Richardson says, "It is no good studying the relations of things before the real things are known." It seems immaterial who teaches these physical, geological, or mathematical problems that have strayed into the geography course, or in what part of the school curriculum, so long as they are taught. The matter is undoubtedly one of great urgency, and an expression of the views or schemes of correlation of representative teachers of geography would be most valuable, especially in large schools where physics, mathematics, history, and geography are taught by different masters.

(b) *Examinations*.—The general impression conveyed by the symposium is that much of the practical work finds no corresponding re-

presentation in the questions set at junior examinations. Several teachers, *e.g.* Mr. Wallis, Mr. Fairgrieve, and Mr. Richardson, suggest a policy of "no surrender"; and in some quarters boycotting of the examinations is actually suggested. A symposium on this matter might suggest a way out of the difficulty, which is a very real one, as most of us know by experience.

THE PLACE OF GRAMMAR IN THE TEACHING OF ENGLISH.

By W. MURISON, M.A.

Senior English Master, Aberdeen Grammar School.

"GRAMMAR," says the Board of Education Circular on "The Teaching of English in Secondary Schools" (Circular 753)—"Grammar should not bulk largely in the regular school teaching of English, and it should not be isolated from composition and literature and made into an abstract exercise. Whole lesson-periods should not be systematically given up to formal grammar. . . ."

This plain statement formed the basis of the straightforward question to which a number of experienced teachers replied in the July issue of *THE SCHOOL WORLD*, *viz.*, "Should the study of English grammar be formal or purely incidental to the work in literature?" The symposium that resulted produced a valuable and interesting body of evidence, to focus the chief points of which is the endeavour of the present article.

Much may naturally be said on both sides of this question, and naturally a considerable conflict of opinion has emerged, which shows how divergent are the views held about the best method of inculcating English grammar. But it is surprising that the meaning either of the Circular or of the question should have occasioned any doubt. One writer suggested that the Circular probably means nothing more than that the word "grammar" should not have a place in the written time-table of the school. Another thought the question should run: "Why do we ask for grammar teaching at all?" Again, the word "formal" was understood, not as obviously denoting systematic, but as if it connoted stiff, perfunctory, possessing the form without the spirit. And, again, "incidental" was curiously considered equivalent to "inductive." Even those who took the question and the statement in their plain, straightforward sense found a number of side-issues to complicate their answers, *e.g.* "What is grammar?" and "What is our aim in teaching English grammar? Is it to be studied as an end in itself, or as a means to the acquirement of foreign tongues?" Allusion was also made to a difficulty that many schools

have to face. Pupils come from different social grades, varying in the kind of spoken English, and consequently require very different treatment in regard to grammar. Some of the writers left the region of opinion and argument, and ventured on the domain of insinuation. One declared the language masters to be chiefly to blame for the demand for formal and separate grammar lessons: "they often want, as most of us, somebody else to do a lot of their own grind." As a *quid pro quo* came this from the other side:—

I begin to suspect that the real reason for the distaste for learning and teaching grammar is not based on any educational theory—that the Board of Education has succumbed to the plausible misrepresentations of a deplorably large section of the teaching body. The teachers themselves, in all ranks of humility and exaltation, have been either too lazy or too conceited to come to terms as to a reasonable scheme of English grammar teaching.

When we examine the answers given to the problem, we find that the fifteen contributors divide broadly into two camps. Five range themselves definitely against formal grammar: nine are as definitely for it. The remaining writer takes up the position of an Ishmaelite, his hand against every man. At least, that was the impression conveyed to my mind by the first reading of his answer, and confirmed by subsequent readings. Nominally, he attacks formal grammar; really, his views would kill all teaching of English grammar. Take some of his declarations:—

I do not pretend in the least to be an expert on the subject of teaching English grammar. I never learnt it myself, and I have never ceased rejoicing thereat. To me formal grammar teaching from a formal teacher (and what else could he be?) is a nicely calculated method of killing originality, creative power, and all love of art and literature. To play a game of hide and seek with the nouns and adverbs in a passage of Shakespeare or a poem—say, from the *Golden Treasury*—may have merit as an amusing game, but it is often sheer murder all the same.

Let them act literature, read literature, sing literature, recite literature, and the grammar comes.

All this formal grammar teaching is part of that gigantic conspiracy to cheat children into believing that learning is difficult, and thereby to exalt the authority of the teacher.

There must, of course, be a few names, but let them be as few as possible, and let them be acquired in learning a foreign language—*gradually*. When I reflect that I used to put whole passages from Burke and Gibbon and Berkeley into French, Latin, and Greek prose without knowing in the least what a complex sentence (in the grammarian's meaning)

was, I realise my intense ignorance, but I rejoice in it.

But such "prave 'ords" and fulminations—there are many others in the contribution—must not be taken too seriously. The writer's confession of ignorance and his admission that he is no expert invalidate his opinion. Ignorance of wireless telegraphy does not entitle a man to express an opinion on its usefulness or uselessness. If, however, this writer pointedly claims inclusion among the supporters of the incidental method, we shall have six instead of five in that camp. That is, 40 per cent. against formal grammar, 60 per cent. for it.

Let us now state the real question at issue—"On the assumption that English grammar should be taught, what is the best method? Should it be learnt as a formal lesson in set periods, or incidentally in connection with composition lessons and literature lessons, *i.e.* lessons on literary masterpieces." I shall take the arguments of the two parties in turn, beginning with the opponents of formal grammar.

Formal grammar, it was declared, is unnecessary, at least for juniors; since by imitation, by reading, by composition, the pupil learns quite enough practical grammar to serve his purpose. Any grammar beyond the modicum required for practical purposes—historical grammar, for example—is a luxury, not a necessary of school life. In composition and précis, one writer urged, lies the proper place for learning English grammar; since apart from these it cannot be learnt with intelligent interest. Grammatical analysis, he added, will often serve admirably to clear up difficulties in literature lessons, and to strengthen the pupils' control over their work. Another writer strongly held that all grammar being in its nature corrective, not creative, is strictly an incidental to oral and written composition, but not to literature, which is the model and therefore not to be corrected. Formal grammar, it was maintained, should not be taught, since grammar is purely a means to an end, not an end in itself. Formal grammar, it was generally held, is too difficult for juniors, and for most young people very unattractive. The ordinary text-book, also, elaborates the subject unnecessarily, and tends to lay down rules in too stiff and arbitrary a manner. Again, the refinements of grammar, being so largely matters of usage, are far better picked up insensibly from the reading of the best authors than learnt from a manual. Finally, one writer declared that long experience proves that the study of grammar may easily become purely formal, *i.e.* perfunctory, spiritless, and therefore should without doubt be linked with the study of composition and literature.

Several of the supporters of the incidental method anticipated an objection which most of their opponents advanced, *viz.* that the casual picking up of grammar tends to produce a knowledge which is incomplete, haphazard, a mere patchwork. To obviate this, it was laid down that the acquiring of grammar by way of composition and literature must proceed systematically. The teacher should follow the course of some outline text-book, unless—what is usually better—possessed of a plan framed on his own experience. One of the most strenuous assailants of formal grammar uttered a clear warning against the danger of falling into any laxity as to essentials, and held up a good deal of current journalism as an example of what may result from the neglect of elementary grammatical principles. Similarly, another, who would have no grammar for juniors, remarked that it is reasonable to hold that all advanced students who are careful over their English require some study of grammar.

Let us now pass to the defenders of formal grammar, and hear the defence. Their main position was that it is only in the systematic way that we shape and co-ordinate our instruction in grammar, and so cover the whole field—or as much of it as we care to cover; while if we depend for grammatical knowledge on composition and literature lessons, our attainment will be irregular, haphazard, incomplete, a mere patchwork, leaving great gaps. Not only so, but to make composition and literature the means of learning grammar is a sure way to injure composition and literature, since these are concerned with other sides of language than grammar is. Again, it was urged that formal grammar, although no longer regarded as an end in itself, is useful in various ways; for example, English grammar is not only a valuable preliminary to linguistic study whether in English or in foreign tongues, but is also advantageous in directing the pupil's attention to the underlying principles and relations of language, in other words, to the philosophy of language. Formal grammar, also, makes an admirable introduction to scientific studies, and, for advanced pupils, possesses great importance as a discipline in abstract reasoning, a kind of logical mental training. But it is interesting as well as profitable, even for juniors. Only those who are ignorant of psychology could maintain the heresy that drill is distasteful or unsuitable to the child of twelve. Finally, experience has convinced the supporters of formal grammar that the fundamental brain work which should underlie all a boy's understanding of, and experiments in, language has been seriously weakened by the neglect of grammar teaching; that the inci-

dental method deprives English of some of its value as a training in exact expression, and encourages a slipshod style of writing; that, when children pick up their grammar in the course of composition, reading, and literature lessons, their minds thereby lose one opportunity of gaining strength, precision of thought, and certainty of expression.

While the defenders of formal grammar deny that the incidental method is the proper way to gain grammatical knowledge, they allow that grammar need not be ignored in the composition or the literature lesson. But, in that case, the grammatical instruction should take the form of mere references, reminders, and *obiter dicta*. Grammar, indeed, may play a useful part in elucidating some difficulty in literature, in enabling pupils to appreciate the language, and consequently the idea of a passage. In short, grammar, composition, and literature all concern themselves with language, and are bound to throw light on one another.

It is no part of my present duty to express my own views on the question of teaching grammar; or to say whose arguments seem to me the stronger. On certain points, each party flatly contradicts the other. When doctors differ, who shall decide? But I may be permitted to make one or two remarks of a non-party character.

First, in spite of the general tone of uncompromising hostility, some of the combatants show at times a trace of friendly approximation, as when the opponents of formal grammar declare that the picking up of grammatical knowledge must, to be effective, proceed not casually but systematically, and the supporters of formal grammar welcome the occasional use of the incidental method as a valuable auxiliary—by way of reference and reminder—in the practical application of what has already been systematically acquired.

Next, the argument that grammar is uninteresting and therefore should not be taught, or is interesting and therefore should be taught, is surely weak. The presence or the absence of interest is by itself not sufficient to justify or to condemn a subject. If it is profitable and necessary, are we to discard it though it is dull? And who decides the dullness? Is it the pupil or the teacher? If a subject is unnecessary or useless, are we to study it simply because it is interesting? I can understand interest or its absence deciding, and rightly deciding, between two equally useful subjects. Again, the existence of unattractive, over-elaborated manuals is not strictly a valid argument against grammar. The bad textbook may be the subject's misfortune, not its fault. For those who use the book, that study

may be spoiled, but is not necessarily proved to be unprofitable for instruction.

Speaking of the difficulty of grammar, one writer said: "Anyone who knows the history of English could write down in a minute three questions which nine grammar teachers out of ten could not answer." If this is an argument at all, it militates against the teacher, not against the subject. But we can scarcely consider it worth bringing forward as an argument when we remember that one fool can ask more questions than ten wise men can answer.

In conclusion, it is noteworthy that each party fearlessly appeals to experience as on its side. If that is so, then neither method of grammar teaching can be so black as its opponents paint it. Or else each method will succeed under favourable conditions, as under unfavourable each will fail. To put it differently, the brain is more than the book, the man is more than the method.

ORIGINAL SOURCES IN THE TEACHING OF HISTORY.

By A. J. B. GREEN, M.A.
Perse School, Cambridge.

NINETEEN teachers of history have in the August issue of THE SCHOOL WORLD stated their views on the value of using original sources as material on which to base exercises that will demand independent thought on the part of the pupil, and assist in the development of his self-initiative. There is no unanimity of opinion among these experts: some condemn absolutely any such attempt; one declares that he has tried and failed; others, speaking from a happier experience, testify that in this direction they have found inspiration and hope. It is the aim of this article to examine the arguments urged and the assertions made on either side, and, if possible, to indicate some lines on which the discussion may profitably be continued. Perhaps we shall understand most clearly the present position if we first consider what weight is to be attached to the arguments used by the opponents of the practice, and then try to estimate the advantages claimed for it by its advocates.

The first objection comes from Mr. Fletcher. He has in mind such theses based on the study of original documents as are required from students in American universities, and asserts that the results of this work are nearly always disastrous. How much more ridiculous would it be then to put schoolboys on a similar track! Mr. Fletcher does an injustice to the advocates of source-exercises in attributing to them any such intention. There is no similarity between university theses and the exercises

proposed by Mr. Bowtell, Miss Polkinghorne, and others; and a condemnation of the former does not involve a condemnation of the latter.

Mr. Hankin's objections are more serious. He has used Messrs. Keatinge and Frazer's book with a small form of intelligent and hard-working boys, age about fifteen years, and finds these two difficulties:—(1) The source book destroys all balance. One cannot give the facts for both sides in equal detail, and boys get a one-sided view of the situations and movements they are studying; (2) from the point of view of knowledge of history facts, very little progress is possible; and the boys, feeling that they are not getting through much work, cease to be keen and interested. It is clear that any method that produced the first of these results would stand condemned. But the use of sources does not of necessity mean one-sidedness; documents can be found to represent different points of view, and the teacher is always present to correct false impressions. But while Mr. Hankin has not discovered an essential defect in the method, he has without doubt discovered the deficiencies of the source material at present available. With regard to the second point, it is certain that less ground will be covered in the same number of hours if time is given to the working of exercises based on sources. The pupil cannot acquire so great a store of information if he has to discover his facts, and think about them, and compare them; but what he knows he will know more intimately and will remember longer. At the same time, the boy must feel that he is doing something that is worth doing, and that he is making progress of some kind. This is a point which advocates of the method must keep in mind.

Prof. Hearnshaw thinks that historical exercises must be provided, but dislikes the use of sources for this purpose on the ground that to encourage the pupils to play at original research with toy materials is to train them in premature dogmatism, and thus to predispose them to become politicians. Like Mr. Fletcher, he exaggerates the nature of the exercises proposed. A teacher of geography is not accused of playing at original research when he gives his pupils a map of America, and tells them to find the chief river basins; a teacher of mathematics is not accused of playing at original research when he tells his pupils to find out how much work x men will do in y days if a men do b work in c days; neither should a teacher of history be accused of playing at original research when he asks his class to find out what information can be got from a given document, to compare two accounts of the same event, and to work out other such problems.

Dr. Morris deals with the question mainly

from the point of view of examinations. It is a point of view that every schoolmaster who undertakes the responsibility of getting boys through examinations that will influence their future careers is bound to adopt. But it is a consideration that need not affect the discussion of educational values. If a sufficiently strong opinion prevailed among schoolmasters that the use of original sources for exercises was desirable, examiners would be compelled to modify their methods accordingly. Another objection that Dr. Morris urges is much more important. The time that would be required for these exercises Dr. Morris would prefer to spend in teaching more European history; and Prof. Tout is of the same opinion, contending that what the pupil needs is first of all a wide sweep of general historical movements. This raises the important question of the history syllabus, a problem that advocates of source-exercises will have to face. I deal with this point later.

If we turn now to those who have used sources as material for exercises, we can draw up a long catalogue of the advantages they claim for their method:—

1. It trains the imagination, the ability to trace cause and effect, and, last but not least, it rouses in the minds of the scholars a critical spirit and the ability to weigh pros and cons.—Mr. Bowtell.

2. It does much to combat the prevalent notion that history is a matter of memorising, and does not put much exertion on the understanding of the pupil.—Mr. Bowtell.

3. These methods (source-exercises and others) will help students to realise that all knowledge is not contained in text-books, that everything printed is not necessarily of equal value, and that ability to find information, rather than a good memory, is truly the mark of a scholar.—Miss Davis.

4. Children taught in this way will be more independent and critical, and have more initiative. They will be more eager to learn for themselves, and less willing to be passive listeners.—Miss Polkinghorne.

5. The method tends to develop the individual.—Miss Polkinghorne.

6. The study of the source would be to history what the bit of observation work, the map-reading exercise, even the school journey, are to geography.—Miss Reid.

7. Original sources give the pupil work in history which requires him to exercise his own judgment.—Mr. Arnold Smith.

8. Original sources provide satisfactory material for training the power of reason to deal with such matters as come into the history lesson.—Mr. Frank Smith.

9. These exercises will ensure a more critical

and intelligent use of text-books afterwards.—Mr. Snowball.

10. First-hand material provides a vivid representation that somebody else's second-hand account can never give.—Mr. Winbolt.

11. When used for the working out of exercises, such matter is certain to be more fully memorised as the result of the pupil's own efforts.—Mr. Winbolt.

12. The pupil will be more competent to examine fresh political phenomena.—Mr. Winbolt.

There is some repetition in this catalogue, but the chief claims may be fairly summed up in these three propositions:

A. The source-exercises give to the history lessons an intellectual interest in addition to the emotional interest excited by the subject itself.

B. The boy gets a better understanding of the past, or of some portions of the past, even though his stock of facts is less.

C. The use of sources for historical exercises affords a training in method of study, and hence enables the pupil to deal more effectively with new material and new situations.

The first and second of these three advantages can evidently be gained by other means than by the use of sources. Mr. Marten, for example, suggests essays that force a boy to strike out a line of his own, to express his own views, to marshal his facts in a way not previously suggested by the text-book or the teacher. Miss Reid would set questions that can be answered from, but are not answered in, the text-book, questions that can be answered only with the help of several text-books, questions that require the exercise of individual judgment. Other means of giving intellectual interest and real understanding are known to all teachers of history. So far as these advantages are concerned, the use of sources can be regarded only as one plan among many.

There remains the third advantage claimed. The use of sources for historical exercises affords an opportunity of training the pupils in critical methods. There is no question here of training expert historians, but upon the material supplied to them the pupils may practise many of the methods of scientific students. They may learn to get from their material the utmost that it will yield; they may compare accounts of the same event by several witnesses, and try to account for differences; they may detect the prejudices of a writer; they may compare the views of differing statesmen on some disputed point. They may learn in the process that truth has to be won by great effort; and they may carry into the problems of to-day the same habit of careful and critical inquiry. This is the strong

case that advocates of source-exercises have tried to prove; and it rests with their opponents to show that this critical, scientific spirit should not be cultivated in our schools or that it can be equally well cultivated by other means.

It is a simple thing to point out the advantages of a method; it is a difficult task to show how the method can be put into operation. It will be remembered that the opponents of source-exercises urged that the sources available were inadequate, that the exercises took much time, and that the use of them might impede the study of European history and the knowledge of general historical movements. The only effective answer that the advocates of source-exercises can make to these objections is to draw up a detailed scheme for a history course. We are hindered in explaining exactly what is needed by the lack of any commonly accepted terminology to describe the various stages of a boy's development; but if his school life be divided roughly into three parts—a preparatory stage up to the age of twelve, a middle stage from twelve to sixteen, and an advanced stage above sixteen—it is mainly for the middle stage that we need this detailed scheme. With the preparatory stage we are not really concerned, for there is no proposal to use source-exercises with small children; and those who survive into the third stage are a favoured minority, whose ability to use original sources and documents with profit is admitted by nearly all who have contributed to the discussion. From what has been said it follows that if the majority of the pupils in our secondary schools are to make any continuous study of English and European history, it must be in the middle stage. That many boys move from one school to another at the age of fourteen is a difficulty not more insuperable in this than in other subjects. If, then, the advocates of source-exercises desire to give the surest argument for their case, they must supply schemes for a course covering these four years, and they must show in some detail the subject matter of each lesson, the sources used, the exercises based on them, and the number of school and preparation hours required. The sources and the exercises would presumably vary with different teachers; and therefore the more schemes, the greater wealth of sources and exercises. Practical schemes of this kind would be the answer to the question whether progress is possible on these lines; and without them there can be no satisfactory estimate of such lessons as those described by Mr. Bowtell, Miss Polkinghorne, and Mr. Snowball. Excellent as these lessons seem, they can only be properly judged when we know the whole of which they are parts. This is true, too, of the

exercises contained in Mr. Keatinge's "Studies in the Teaching of History," and in the Keatinge-Frazer book.

One other point calls for remark. The word "generalisation" leads to confusion. To Prof. Hearnshaw and Miss Reid it means one thing, to Mr. Bowtell quite another thing. Either it must be strictly defined or it must be allowed to drop out of the discussion. Its unqualified use can only darken counsel.

PERSONAL PARAGRAPHS.

GIGGLESWICK celebrated, on July 20th, the four hundredth anniversary of the building of the first known schoolroom. The foundation dates back still further, certainly to the previous century, when James Carr, a priest, opened a grammar school for the boys of Ribblesdale. Mr. Bell, one of the masters, has recently compiled a history of the school; it is a very complete record of buildings and endowments, but does not give as much information as schoolmasters, at any rate, would like with respect to the headmasters and masters who have established the school's traditions. Among those "men fearing God, of true religion and godlye conversacion, not given to diceinge, cardinge, or any other unlawful games," are doubtless many men worthy of greater fame than they have enjoyed. One, William Paley, the father of the author of "Evidences of Christianity," ruled over the destinies of the school for fifty-five years; his successor held office for forty-five years. The present headmaster is Mr. G. N. Douglas, who succeeded Mr. W. W. Vaughan when the latter was appointed headmaster of Wellington. Mr. Douglas was formerly a house-master at Uppingham; he played both cricket and football for Cambridge University.

* * *

At the end of last term; Charterhouse lost another of its famous masters: Mr. Girdlestone retired after having held office for forty-five years. He was formerly a foundationer, went up to Oxford, and returned to his old school. Since 1874 he has been a house-master. He is to be succeeded by Mr. Crabtree, who was head of the school for two years, took honours in both classics and mathematics, and returned as a master in 1899.

* * *

MR. J. M. A. THOMSON, headmaster of the County School, Llandudno, died suddenly at the early age of forty-nine on July 31st. He had won reputation, not only as a schoolmaster, but also as a climber; he had made many ascents in the Alps, and was one of the best known members of the Climbers' Club at Llanberis.

WILLESDEN teachers are deprived of a friend, deservedly popular, by the sudden death of Mr. Robert McKee, the Willesden Director of Education. He was the son of an Irish geologist, obtained a scholarship to the Old Queen's University, took honours in natural science at Cambridge, and was appointed to one of the first intermediate schools opened in Ireland. His first appointment in England was as principal of Harlesden College in 1888. After the passing of the 1902 Act he was appointed organising inspector, an office afterwards altered, with the growth of its duties, to Director of Education.

* * *

MR. CLAQUE, the district inspector for Finsbury, who reached the age of sixty-five at the beginning of the year, has now retired. He was one of the first inspectors appointed by the School Board for London; he entered their service in 1879, after being an assistant inspector under the Board of Education. Early in his career as an inspector he was a stickler for uniformity, but he has throughout been a good friend to the teachers, and has taken a keen interest in the development in his district of those parts of education that lie outside class-room instruction.

* * *

MR. F. H. SPENCER, headmaster of the day school of the City of London College, and chairman of the London County Council panel of examiners, has been appointed an inspector under the Board of Education. He has been attached to the Liverpool district, and is to commence work there in September.

* * *

HE is to be succeeded as headmaster of the day school by Mr. Fred Charles, a master at Strand School since 1894, and for many years a frequent contributor to THE SCHOOL WORLD. Mr. Charles has for a long time been a working member of the Assistant-masters' Association, in which he formerly held office as treasurer, and in 1910 as chairman. Another former chairman of the Association, Mr. G. F. Daniell, is to succeed Mr. Spencer in his examinership under the London County Council. Mr. Daniell, who was a Scholar and Leaving Exhibitioner of King Edward's School, Birmingham, was science master at Bedford County School from 1890 to 1894, and at the Mercers' School, Holborn, from 1894 to 1907. He is a regular attendant at the meetings of the Education Section of the British Association, before which he recently brought the question of the relation between school books and eyesight, a question on which a committee is to report at the approaching meeting of the Association.

MISS McCABE, of Cheltenham Ladies' College, has been appointed vice-headmistress of Milham Ford School, Oxford. Miss Squire has been appointed mathematical mistress, in place of Miss Hogg, who has accepted the post of senior mathematical mistress at the Hutchinson's Grammar School, Glasgow, and Miss Paynter has been appointed modern language mistress in place of Miss Smart, who has accepted the post of senior mistress of method at the Training College, Bristol.

* * *

AMONG the recent appointments of the Board of Education is that of Miss Ethel Loveday, an old student of Cherwell Hall, Oxford, who is promoted from the position of a headmistress to be an inspector. Miss L. B. Marshall, also an old student, has been appointed headmistress of the Secondary Girls' School at Middlesborough. Miss J. Dykes has resigned her tutorship at Cherwell Hall to become headmistress of the Girls' School, Havergal College, Toronto. Miss I. Parker and Miss Pearman, of Girton College, Cambridge, have been appointed tutors.

* * *

By the death, on July 29th, of Mr. J. D. Cogan, at the advanced age of ninety-five, a link with the past of more than ordinary interest has been broken. He claimed, and doubtless with justice, to have been the first "science teacher in schools," his first lessons having been given in the year Queen Victoria came to the throne. Mr. Cogan qualified as a dentist, but a portion of his early life was spent with the late Andrew Crosse, of Broomfield, whose experiments upon atmospheric electricity first aroused an interest for science in the younger man. In 1837, at Bath, he gave a course of lectures upon electricity, which were a great success, and led to his being asked to give science lessons at several private schools. The lectures thus begun were continued for a period of more than fifty years. As his fame as a lecturer grew he was asked to deliver courses in various parts of England and Scotland, and eventually gave up his dental practice to devote his whole attention to public lectures.

* * *

MR. DOUGLAS BERRIDGE, to whom we are indebted for the foregoing particulars, adds:—"The syllabus of a course of lectures delivered at the Royal Institution at Bath by Mr. Cogan in the autumn session of 1879 is before me now; contrasted with the manner in which electricity is taught in our schools to-day, this old-time syllabus affords strange reading: statical electricity occupies the first two lectures, whilst 'galvanism' is disposed of in a single evening;

and yet those of us whose memory goes back to the 'seventies will be inclined to ask ourselves whether, after all, the increase in logical order in which we science-masters of to-day present the subject has been all gain; whether in our constant efforts to make our pupils 'think,' and in our enthusiasm for science as an educational subject, we do not risk the danger of destroying the intense interest which was aroused by those who laboured before us, and to whom we owe more than we are apt to realise."

ONLOOKER.

EXAMINATIONS AND INSPECTIONS.¹

By JESSIE WHITE, D.Sc.

IN the year 1877 Jevons, the logician and economist, published in *Mind* a defence of the examination system under the title of "Cram." "It is," he said, "the popular cry against 'cram' that I have answered, and I will conclude by expressing my belief that any mode of education which enables a candidate to take a leading place in a severe and well-conducted open examination must be a good system of education. Name it what you like, but it is impossible to deny that it calls forth intellectual, moral, and even physical powers which are proved by unquestionable experience to fit men for the business of life."

With regard to schools, he says: "The middle-class schools are yet far from what they ought to be, but the examination system set on foot by the old universities is doing immense good, giving vigorous and definite purpose where before a schoolmaster had hardly any other object than to get easily through the 'half.' Primary schools would for the most part be as bad as the old dame-schools, did not the visits of her Majesty's Inspectors stir them up to something better. In one and all of the grades of English education, to the best of my belief, examination is the sheet-anchor to which we must look."

This, as I have said, was in 1877. Whatever views we may hold to-day with regard to examinations, we certainly do not look upon them as a sheet-anchor. We know that the only sheet-anchor is an earnest realisation on the part of teachers and parents alike of what true education means.

In secondary schools both inspection and preparation for external examinations exist. The purpose of both is the same: to secure the efficiency of the school. But with the system of examination which Jevons had in view a school is judged by what it does for its best pupils, whereas inspection takes into consideration the claims of the weakest pupils, and would do this more thoroughly were it clearer about its aim.

In the case of a school receiving Government grants the younger pupils are forbidden by the Government regulations to sit for external examinations. This secures to the teacher a freedom which no interference on the part of the Board of Education diminishes. Jevons himself saw that the curtailing of the liberty

¹ A paper read before the Educational Science Section of the British Association at Portsmouth, September, 1911.

of the teacher imposed by the examination system was one of the objections against it. He saw that it made the examiner and not the teacher the director of education, but he thought that since as a general rule examiners are more able men than teachers, and that the lines of examination are laid down by the joint judgment of a board of eminent examiners or by authorities who only decide after much consultation, the choice of profitable courses of study could better be left to them than to a single teacher guided only by his own discretion.

The alternative, as stated by Jevons, was a vicious one. It overlooked the connection which all school subjects have with one another, and failed to recognise that only the staff as a whole, with its intimate knowledge of the needs and interests of the pupils, could properly decide what it is best for them to learn. But he is scarcely peculiar in this. To this day the actual teachers, those best qualified to have an opinion, are the last to be consulted. In the majority of schools there is no machinery for bringing the experience of the whole staff of a school to bear on the problem of framing the curriculum of the school. Time-table and curriculum are supposed to be the concern of the head of the school, who may take the staff into his confidence or not, as he likes. They are therefore part and parcel of the conditions imposed on the assistant-teacher, and not the result of much consultation between the members of the whole staff. These conditions can consequently become very irksome to those who have education at heart, and who are not adept at suing as a favour for what ought to be theirs of right.

The externality of the curriculum to the teachers as a whole is reflected in the manner of the inspection. The inspectors do not meet the members of the staff collectively; they do not discuss with them the work of the school as a whole. That is supposed to be the concern of the head. The inspectors in their reports refer to the general organisation of the school. Their information is derived from the head, who is responsible for the organisation. If supplemented at all, it is only by information casually collected from individual members of the staff. If the inspection is, as it ought to be, a safeguard for securing that the organisation is the best possible under the given conditions, something more is necessary. A series of questions calculated to make known strong as well as weak points ought to be sent to the staff prior to the inspection, and, be answered by them after serious consultation with one another in committee. The method employed at present seems haphazard and unmethodical, and unworthy of the great responsibility involved in educational work.

In reporting on the school work it seems usual to deal with each teacher separately, and to put together in one general account the impressions derived from lessons in different classes, and it may be even in different subjects. This method of reporting makes it unnecessary for the inspectors to gain a clear idea of the progress of individual classes. It is, of course, much easier for the inspectors, but if the object of the inspection is to test the progress of the pupils, it seems a curious way of recording the results of the

testing. It prevents their arriving at a real knowledge of the comparative merits of different methods of treating a subject, and thus being in a position to add to pedagogic knowledge. It seems to me that each class ought to be dealt with separately in the report, and that an attempt should be made to ascertain the general level of its attainment. In the case of backward classes special consideration should be devoted to the causes of the backwardness, and remedies should be discussed. It may be said that in order to judge of the general level of attainment, inspection will require to be supplemented by examination. This necessity will be recognised in time. After all, examination is the readiest instrument we have of gaining psychological insight into pupils' minds. But the examination must be conducted with this purpose in view. It cannot be an external one, but must be one having an intimate relation to the work done in the school and carried out with the cooperation of the teacher.

The methods of inspection at present in use are :—

1. Hearing a lesson.
2. Questioning the pupils.
3. Examining the exercise-books.

With regard to the first, it may be said that the inspector necessarily sees the class under artificial conditions. His very presence introduces a factor the effect of which cannot be overlooked even in the case of an old and practised teacher. As inspectors are, I think that it is an advantage that the custom has grown up of letting the teacher know beforehand when an inspection is coming. There are pieces of work, mostly in the nature of correction, which have to be done, and which cannot fail to be boring to an onlooker as well as to the members of the class whose work was accurate in the first instance. There are even some pieces of ordinary teaching that are not suitable for doing before an inspector. An inspector once remarked to me on the frequency with which carbon dioxide was prepared in the schools which she visited. The fact of the matter is that this is a safe experiment admirably suited to an inspectorial visit, when the teacher's attention would be to a considerable extent diverted from his class. No one in his senses would, for instance, make carbon monoxide when an inspector was in the room. Is it justifiable, therefore, for the sake of producing a better impression on the inspector to deviate from the natural sequence of subjects? This very question reveals the artificiality involved, for continuity is the very backbone of teaching, and an inspector who takes a lesson *per se* without inquiring how it is related to what has gone before and how it will be related to what comes after is not qualified for his work. Yet I have heard it stated by a member of an education committee that an inspector can sum up a teacher after five minutes' observation, and there are inspectors—they seldom are Government inspectors—who apparently believe themselves gifted with some occult power which enables them to do this and to lay down negative propositions despite the acknowledged difficulty of proving a negative.

There are fallacies with regard to inspection that need uprooting, and one is that however fair it may

be in training-college inspection to test the accuracy of the trainer's estimate of a student's teaching power by taking one sample haphazard, it is not fair in ordinary school work, because in this case if a conjunction of circumstances prevents the teacher from doing himself justice, there is no specialist judgment to which the teacher can make appeal. On the other hand, a conscientious inspector will never be satisfied with one kind of testing. He will supplement it in every case by the other two methods and by conversation with the teacher concerned.

In regard to oral examination of the children, the difficulty of language comes in. Usually before a big inspection by the Government inspectors, the Board, which already has in its possession the school timetable and the scheme of work in the different subjects, sends for a list of the text-books used. Familiarity with these text-books will enable inspectors in an oral examination to use language which the class understands, and to deal with subject-matter known to the class. In cases where no text-book is used, as is generally the case in elementary science teaching, the inspector does not know until the note-books have been put into his hand how the various topics have been treated, and the language in which he puts his questions may differ considerably from that to which the class is accustomed. I have known, for instance, a Cambridge examiner produce paralysis in a class by the use of the word "phenomena" in a written question, and I have known two pupils, both over seventeen, fail to answer a question on which they could have scored full marks, because the adjective "metallic" occurred before the substantive "salt." This and the further difficulty of his knowing exactly what subject-matter has been treated if the teacher has departed from the order followed in familiar text-books prevent his gauging the attainments of the class with the accuracy one would wish.

Yet whatever the drawbacks of this method from the point of view of testing either the pupils or teacher, it is certainly a helpful method to a teacher who is keen to observe whatever will improve the efficiency of his teaching. To note the way in which the pupils respond to the questions asked deepens the teacher's insight into the powers of his class. It is unfortunate that the pupils realise that nothing depends for them on the way they answer at such an inspection. Often bashfulness will prevent the best pupils in a class from answering, and somewhat to the teacher's chagrin the bulk of the answers come from the shaky members of the class, who do not always reflect before they speak. If the class were previously divided by the teacher into three parts—the good, the fair, and the weak scholars—the inspector in questioning could begin with the weak, turn to the fair if he failed to elicit an answer, and finally to the good if this happened again. In this way he would form a much better idea of the powers of the class as a whole, and if any discrepancy appeared between his and the teacher's estimate of any particular scholar, the psychological reason for this could be inquired into. A record of the questions asked might be made by the teacher, who would then be in a better position to discuss the result with

the inspector in the absence of the class. The consciousness that the class knows that the testing is a testing of the teacher and not of the pupils puts the teacher in a false position with the class. There are classes that become excited by the presence of a stranger, and occasionally a troublesome pupil may take advantage of such an opportunity to show off either thoughtlessly or of malice aforethought.

The exercise-books reveal much, both as to teacher and pupils, but it would be impossible for an inspector to go through all the books. Ought the teacher to give him only the work of the best pupil, or should a sample be chosen by chance, or should the work of the weakest pupil be shown?

No etiquette has grown up on this subject, partly because the aim of inspection has not been clear. We may be apt to decry etiquette, but after all the *raison d'être* of etiquette is to facilitate intercourse by enabling us to know beforehand what will be expected of us and what we have to expect. A strict etiquette with regard to inspection is a necessary safeguard for the teacher. Anyone who has not worked in a girls' school at the time of an inspection will scarcely realise the amount of nervous fear this will occasion to capable mistresses who are thoroughly conscientious in their work. Often it is the slack mistresses who are endowed with a self-advertising instinct which enables them to impress the unwary inspector, while those who know that nature has not bestowed upon them this useful instinct of self-advertisement suffer great strain from nervous anticipation. The more familiar and strict the etiquette of inspection is, the less will it hold of unknown terrors.

The necessity for a suitable inspectorial manner for an inspector is as great as that of a suitable bedside manner for a doctor. It is not a suitable occupation for boys fresh from college. Although the qualifications demanded by the Holmes circular would tend, one would think, to secure the right manner, yet it does not appear from the stories which flooded the newspapers after the publication of that circular that this is the case. Such stories did not, however, emanate from the secondary schools.

As far as my experience goes, the Board of Education inspectors confine themselves to making affirmative statements justified by observation. It is only a flagrantly unwise inspector who will indulge in negative statements, and he would not do this had the teacher concerned any right to bring him to book for his criticisms. Opportunity ought to be given the individual teacher of discussing his work with the inspector in the absence of the class. The presence of the class, by demanding at least half his attention, lessens his power of expressing clearly his views. This is a loss to the inspector, who ought to learn something either by way of confirmation or modification of pedagogic ideas from every teacher with whom he comes in contact. It is also a loss to the teacher, who is prevented thereby from gaining all that he otherwise would from the advice and suggestion of the inspector.

Any inspection to be of real value to a school ought to include a full and free discussion of the aims and

work of the school in a joint meeting of teachers and inspectors. The Board is coming to recognise that the different subjects in the curriculum are interdependent, that it is not sufficient for the so-called English lessons to be excellent if the geography, history, science, and mathematics teachers allow the pupils to write slovenly English. Yet the recognition of this has not yet affected the method of inspection. The inspectors in other subjects may come and go during a big inspection without an inkling of what is done in aid of their subjects by, say, a science teacher, without even seeing such a teacher.

Secondary schools as at present conducted lack unity. Theoretically the head and casual talk supply the unity, but if we believe at all in the science of education or even in an art which is capable of being described and discussed, we must confess that this method of unification is unscientific and untrustworthy.

Such a discussion as part of an inspection as I have in mind would have many advantages. Not the least of these would be that the staff would prepare for it. It would promote reflection in the teachers and make them realise the necessity for organising meetings for discussion and consultation, for keeping minutes for reference, for recording facts throwing light on the peculiarities and progress of individual pupils.

On the other hand, it would make it impossible for unqualified inspectors to continue in the work. The qualification for the work of inspection does not come from one particular course of training, but is the outcome of insight, knowledge, and real aptitude. The knowledge that as an inspector he would have to justify his criticisms, to amplify his suggestions, and answer the questions of an intelligent body of teachers would frighten off all but the suitably equipped. By modifying the etiquette of inspection in this respect, by recognising that the teachers of a school are a corporate body and not a mere congeries of individuals, the teachers would be freed from the danger of unsuitable inspectors, and inspection would become a more helpful and genuine thing than it is at present, and a better test of the efficiency of a school than are external examinations.

THE APPEAL OF POETRY TO BOYS AND GIRLS.¹

By GEORGE WILLIAMS, B.A.

Senior English Master, Leigh Grammar School.

LET us at once rule out any subtle definitions of poetry. The purpose of this article is to inquire what kinds of verse appeal to boys and girls, and wherein lies the appeal. Questions like these may easily involve us in a maze of theory if we begin with principles and apply them to the child. What ought to be so often does not coincide with what is; what is so easily eludes us. If you want the caterpillar to become a butterfly you feed it on the food it likes: it is no use applying your knowledge of organic chemistry to concoct a diet for it. Even if

¹ The substance of a paper read before the Lancashire Central Branch of the Assistant-masters' Association.

you succeed in discovering the right ingredients in the right proportion, there still remains the problem of administering the dose. Much time is wasted in the discussion of subjects like this by beginning at the wrong end. Surely the first question to answer is not "What *ought* the boy to eat?" but "What *can* he eat?" Educate his palate by all means afterwards, but keep him alive first. It will be seen that this argument applied to the problem under discussion implies that something can be found for which boys and girls have a natural liking, and we shall proceed on that assumption. Some differentiation will be necessary in regard to age and sex, but for the most part an attempt will be made to consider what appeals to boys and girls in common.

Probably our first introduction to verse was through nursery rhymes. At a first glance it might appear that they make their appeal on account of the subject-matter—animals, birds, good and bad children; but take the following, which is only one of many of a similar character:—

"Dickory, dickory, dock,
The mouse ran up the clock,
The clock struck one,
The mouse ran down,
Dickory, dickory, dock."

The critic will say that naturally the story of a mouse running up a clock is interesting to a very young child. But suppose the subject-matter be presented to the child in prose form: "There was once a mouse, which ran up a clock. When the clock struck one, it ran down again." The infantile intelligence would reject this as a most ineffective substitute. I admit that the prose version omits all reference to "dickory, dickory, dock," but the reason is obvious. Imagine the proud father trying to explain it to his inquiring child. But his child will appreciate it long before he dreams of asking for an explanation. A glance through any collection of nursery rhymes will quickly reveal the fact that in most cases the sense is not the first consideration. Take the following:

"A Frog he would a-wooin' go,
Heigho, says Rowley,
Whether his mother would let him or no.
With a rowley powley, gammon and spinach,
Heigho, says Anthony Rowley!"

The rest of the verses—thirteen in all—continue the history of the frog to its final disappearance down the duck's throat, but in each case the only lines that are biographical are the first and third. The second, fourth, and fifth are the same each time. Moreover, to the child they are meaningless. I remember enjoying this "poem" without being in the least curious as to the identity of Rowley or the meaning of gammon. And even if the truth of this is disputed, what is the object of the constant repetition? In nursery rhymes it is not the subject-matter that makes the first appeal, but the rhyme and the rhythm, especially the latter. The child who delights in saying "Hey, diddle, diddle," is responding to the same instinct which prompts the savage to beat

rhythmically his skin drum, and children of a larger growth to beat time to music.

In nursery rhymes the rhythm is always very pronounced, and—which is, of course, obvious—there is some attempt at rhyme. These facts suggest a starting-point for the teaching of English verse. Even boys of eleven and twelve often enjoy a poem without being able to understand the subject-matter. I have found them keenly interested on hearing a verse like the following read:

“ See the shaking funnels roar, with the Peter at the fore,
And the fenders grind and heave,
And the derricks clack and grate, as the tackle hooks the crate,
And the fall-rope whines through the sheave.
It's ‘Gang-plank up and in,’ dear lass,
It's ‘Hawsers warp her through!’
And it's ‘All clear aft’ on the old trail, our own trail, the out trail.
We're backing down on the long trail—the trail that is always new.”

I asked one boy what it was all about, and he confessed his ignorance, but said he liked it because “it goes with such a swing.”

Although rhythm and rhyme make the earliest appeal, subject-matter soon becomes more important. From infancy to the age of thirteen or fourteen, boys and girls are attracted to verse mainly by what it tells them. A poem meets with a boy's approval if it contains a good tale. He wants incident and excitement, the rough and tumble of strife, the clash of battle. If it is about Englishmen, all the better; but in any case there must be action. And, if possible, the story should be true. He has no ear for

“ The linnet's song to his wee, shy mate,
In her nest in the rowan-tree,”

and he is blind to the charms of Hebe; but let him hear the thud of horses' hoofs and the clash of arms: he will overlook imperfections. It may be argued that if this is all he may as well read prose. But it is not all. Unconsciously, he is influenced by the rhyme and the rhythm, and he is yet at the stage when he wants both. Other things being equal, he prefers the ballad form to blank verse.

I asked about 150 boys and girls, whose ages ranged from twelve to fifteen, to write down their favourite poem and give reasons for their choice. About 90 per cent. of the answers were concerned exclusively with subject-matter, one girl saying that a good poem is “a tale beautified.” Girls like a narrative, but do not ask for as much sensation as boys: they are able to find enjoyment in reading about such comparatively “quiet” subjects as flowers and birds. The choice of several fell on Wordsworth's “Ode to the Cuckoo,” and not a few chose “Daffodils.” The average boy's attitude to these poems is more often one of toleration than of admiration. My experience has led me to the conclusion that girls like a poem to contain a moral. One girl admired Gray's “Elegy,” because “the poet tells the proud not to look down on these poor people, because some time they will all go to the same place,

rich and poor alike.” Several answers of a similar type suggest that the field for the theologian is even wider than that for the teacher of English.

Both boys and girls demand as a passport to their favour, that the story told in the poem shall have a happy ending, or else compensating advantages. If the hero die, let him cover himself with glory first. Children rarely want to read a morbid poem twice. Although I have known one or two who liked “Lucy Gray,” the large majority look upon it—or should I say “her”?—as

“ A maid whom there were none to praise,
And very few to love.”

From the age of about fifteen a great change takes place as regards the kind of poetry appreciated. Moreover, investigation is more difficult. At ten years of age a boy will lay his whole soul bare, but not when another six years have passed. If a lad of sixteen is passionately fond of love-poems—and such cases are by no means infrequent—he will never admit it. He keeps the innermost recesses of his mind locked, and hides the key. The birth of new ideas, and the consequent changed outlook on life, give him a wider choice, and he will read poetry that would have had no attraction for him previously. He begins to take an interest in social, and very often in religious, questions, and a poem in which his thoughts find a reflection or a challenge is given a favourable reception. He is less under the influence of the spontaneous appeal that poetry makes to the younger boy; in other words, his attitude is intellectual rather than emotional. In general, he will read Leigh Hunt's “Abou Ben Adhem” with interest, but skip such a poem as

“ The splendour falls on castle walls,
And snowy summits old in story.
The long light shakes across the lakes,
And the wild cataract leaps in glory.”

The former may appeal to his imagination, but it is through the medium of his intellect; the latter is apt to leave him unresponsive, because it is a more direct appeal to his imagination; there is no human action to admire or problem of conduct to solve. In an anthology of English verse, graduated according to the age of those for whom it is intended, we should probably expect to find a poem like Byron's

“ There be none of Beauty's daughters
With a magic like thee ”

placed before Wordsworth's sonnet on Milton: it certainly seems easier to understand, and perhaps it is. But the average boy of sixteen can appreciate the sonnet more.

In regard to subject-matter, it is interesting to notice the effect of poems dealing with the supernatural. With boys, especially, the feeling of awe is nearly always subservient to the sense of humour. I allowed three junior forms (ages twelve to thirteen) to read aloud “The Ancient Mariner,” and noticed the effect without making any comments of my own. In nearly every case it was regarded as a most humorous poem, and when we came to the lines,

“ Yea, slimy things did crawl with legs
Upon the slimy sea,”

the children shook with laughter. It is difficult to know the best method of treatment in a case of this sort, for while there is no doubt that interest is aroused, it is an open question whether the "poetic instinct" is being developed. In a form of older children, the same remarks apply to boys, but girls seem to have the sense for the supernatural more highly developed. A girl of fifteen can often appreciate such lines as

"I saw their starved lips in the gloam
With horrid warning gapèd wide,
And I awoke and found me here
On the cold hill's side."

But watch the boys, and if they are not bored, they will be tickled.

To sum up, the problem for the teacher of English verse to solve is mainly one of selection, and not of explanation. Unfortunately, he is too often confronted with the spectre of examinations, and it is much more important that a boy should know the genealogy of Lady Macbeth than that he should shudder at her conduct. The teaching is apt to become too analytical—to apply too much surgical treatment. You may be wiser when you have pulled a rose to pieces and examined the petals, but your bump of curiosity is more highly developed than your sense of beauty. Doubtless there is a certain amount of satisfaction in knowing that "the lips of lying lovers" is alliterative, or that the formula for a dactylic dimeter is *zxxx*, but the knowledge does not contribute to a real appreciation of poetry, which should make its own appeal. There should be just, and only just, sufficient explanation to make the poem intelligible. If a boy read a good poem aloud a dozen times on different days, he will at the end of that time see much more beauty in it than if he had subjected it to the usual process of analysis. The teacher's function is to collect and sift rather than to expound. If a boy is compelled to study numerous notes, he loses the wheat in the chaff. Poetry does not run well in harness. It was never intended to.

HISTORY AND CURRENT EVENTS.

IMPEACHMENT and attainder are both dead in Great Britain-and-Ireland, as dead as the King's "veto." They died of old age, we might say. In the United States of America, attainder was deliberately put to death by section 9 of Article I. of the Constitution adopted in 1789. Impeachment was just as deliberately kept alive by the American Republic, is enshrined in the Constitution, and Judge Archbold is being now impeached by the House of Representatives before the Senate. Why? Because the American ex-colonies, wishing to imitate the British Constitution of 1780-90, as interpreted for them by Montesquieu and other eighteenth-century writers, adopted the sixth constitutional clause of the English Act of Settlement (1701), have never repealed it as we did, and have therefore divorced "the legislature" from "the executive." The Congress is still there in reality what Parliament was supposed (wrongly) to be in the seven-

teenth and eighteenth centuries, a check on ministers and judges.

IN July last there passed away four men whose careers, and our interest in them, illustrate the wide range of our modern sympathies, and the tendency of thought and action nowadays. Mutsuhito, Emperor of Japan, was the first of his line for several centuries to govern as well as reign, and his whole life is identified with that marvellous revolution which has brought his country at a bound, as it were, out of mediævalism into the world of science and modern government. Dr. Griffith John had in other ways, those, namely, of a Christian missionary, helped to develop the rival empire of China. Since most of us can remember, both these men have been household names to those of us who have been interested in what the German Emperor and others have called the Yellow Peril, but which others, whose thoughts about the world and its progress may possibly be wider, would describe by another name. The third of these illustrious recently deceased is Mr. Behramji Marwanji Malabari, a fellow-subject of ours who devoted his life to the social reform of India. How little the world knows of some of its greatest—until they are dead!

THE fourth in our obituary list is Cardinal Fischer, Archbishop of Köln. As we read that his "was a career of the most uneventful kind, and typical of that simple and unpretentious devotion to administrative duty which is respected in Germany," and that "the cause of religious fraternisation and of pacific counsels in Germany has lost by his death a good and influential friend," what is the English reader also thinking of? Perhaps (excuse the imputation) he thinks of that "Cardinal Lord Archbishop" who had dealings with a jackdaw, or of that other archbishop—he of Mainz—whom legend connects with a certain "Mouse Tower." But we were reminded, by way of contrast, of the great elector-archbishops of Köln, Trier, and Mainz, who in the Middle Ages were great princes of the Holy Roman Empire, and of the archbishops of Köln in the seventeenth century, when the dignity was practically an appanage of the Wittelsbach house, that reigned (and still reigns) in Bavaria. They were all "secularised" in the Napoleonic storm, and such characters as the late Cardinal Fischer were possible. "God fulfils Himself in many ways."

We are all on vacation. The long school year has ended, and only examiners are now practically interested in its work. One of the questions set at the public examinations we have now left behind us was about the British Empire, and candidates were asked why the British Isles were still an important part thereof. Probably they were surprised at the question; and their real answer, if only they had ventured to set it down, would have been, Why, of course they are. But in fear of results they were ingenious in finding reasons. Legislative and commercial connections were those they thought of most frequently. They might have added jurisdiction, only they and their teachers are blessedly ignorant

of law, and probably have never been engaged in an "appeal." But if they had realised their fellow-candidates, they might also have quoted our educational sway. The local examination authorities send their papers, not only over the British Isles, but to our colonies, and Bo-bo, son of Ho-ti, now learns stranger things than the mystery of crackling. Examiners are astonished to read in papers written not only by monosyllable-named Chinese, but also by polysyllable-named youngsters of Ceylon and India, the rival claims of Lancaster and York, and such-like antiquities. Why their teachers choose such a subject is to some of us a wonder, but it is evident that the British Empire rules many other matters than was ever conceivable by Assyrian or Persian "Great Kings," or even by the Roman Republic and Empire.

ITEMS OF INTEREST.

GENERAL.

THE Board of Education has had under consideration the question of rearranging the work of students in training to become teachers in elementary schools, who take the ordinary two years' course, in such a way as to enable more attention to be given to the strictly professional work without increasing the pressure on the students' time. It is hoped to issue in the autumn revised syllabuses for students taking the examinations conducted by the Board after 1914. The current syllabuses will remain in force for the examinations of 1913 and 1914.

THE attention of teachers—other than those in elementary schools—is directed to the Secondary, Technical and University Teachers' Insurance Society, approved under the National Insurance Act. The associations represented on the joint conference entrusted with the formation of the Society include all the associations represented on the Federal Council, with the exception of the Headmasters' Conference and the Association of Headmasters. The society has already some thousands of members, and its success is assured. All teachers who are eligible for membership should send in forms of application without delay. Full particulars may be obtained from the offices of the society at 35 John Street, Bedford Row, London, W.C.

THERE are signs that the kinematograph will before long be regarded as an essential part of a modern school equipment. The educational value of many of the films now available is unquestionably very high; and the number of subjects relating to geography, history, and nature study which can be vividly illustrated by the kinematograph is greater than is usually supposed. We propose to print in an early issue an article upon this new educational aid by a contributor who uses the instrument in school work. To show what is possible in this direction, Messrs. Pathé Frères' Cinema, Ltd., 31 and 33 Charing Cross Road, W.C., are prepared to give exhibitions before education authorities free of charge. Their films can be hired at very moderate rates, and most of the films can be supplied on non-inflammable material. We believe

that, before long, the kinematograph will take the place of the ordinary optical lantern, and that education authorities will see that each large school, or group of schools, is provided with the means of showing "living pictures."

THE general report of the chief woman inspector of the Board of Education on "The Teaching of Domestic Subjects" is deeply interesting to all who are in any way connected with the work. From the first page to the last the experiences and impressions of "those who know" stand out above the necessary detail, making the report inspiring and helpful. Throughout England and Wales much good work is being done, and the inspectors everywhere find increased facilities and improved methods of teaching. Cookery is the subject with which the greater part of the report deals, but the more enterprising authorities are now instituting housewifery and combined subjects courses. Repeated emphasis is laid upon the fact that teachers should know something of the home conditions of their pupils, and the little homely touches in the report, quotations of pupils or parents, show more plainly than the most elaborate statistics how the work is appreciated in the homes. It is good to read that various plans for the concentration of the teaching are being successfully carried out, for it is the "habit of mind" that must be inculcated if housecraft is to be raised to its proper level. The domestic instinct in the girl must be recognised and used at the right time and by the right means; it must not be allowed to perish for want of constant exercise.

IN the second volume of the report of the United States Commissioner of Education, for the year ended June 30th, 1911, which has reached us from Washington, some interesting facts can be gathered about the growth of secondary education in the States. For more than twenty years the rate of increase in the number of secondary-school pupils there has been greater than the rate of increase in population. In 1890 the number of secondary-school pupils was 5,900 to the million of population; in 1895 the number was 7,900 to the million, and in 1900 9,500. In 1905 the number reached 10,600 to the million, and in 1911, the year under review, it had reached 13,100. The per cent. of increase in general population from 1890 to 1910 was nearly 47, while the enrolment of secondary-school pupils increased 208 per cent. in the same time.

SECONDARY education in New Zealand is a striking reflection, as regards curricula and text-books, of secondary education in the United Kingdom. Here and there throughout the Annual Report on Secondary Education for the year 1910 are glimpses of a departure from the traditional British scheme of Latin, French, mathematics, chemistry or physics or botany, English, including history and geography, as well as suggestions that the adoption of a vocational course of study would tend to keep the pupils at school to a more mature age. For a country almost entirely dependent upon its agricultural produce, and limited in trade almost entirely to the United Kingdom, it might well happen that a knowledge of

fundamental scientific principles could be provided by courses in soils, botany, breeding, &c., which could be equally heuristic in treatment, and therefore equally valuable with the traditional British course. At present secondary-school pupils in New Zealand appear to aim at teaching or the Civil Service as a career; it were better to train leaders of the nation along the lines of the nation's development.

IN New Zealand boys remain at the secondary school, on the average, for 2.55 years, and girls for 2.58 years. It is estimated that £12 10s. per pupil covers the necessary expenditure, and Government grants are arranged so that the school shall receive this amount for each pupil filling a free place. There are 21 headmasters, with an average annual salary of £490; 10 headmistresses, with £368; 119 assistant-masters, with £232; and 97 assistant-mistresses, with £145, as well as 79 part-time teachers. The average number of pupils per teacher is 21. Where attendance at a secondary school is impossible, there is a special secondary department of the district high school, and for this special work the head of the district high school receives £30 per annum in addition to his ordinary salary; and assistant-teachers are appointed on the secondary-school salary level. Fifteen per cent. of the boys attend the Auckland Boys' Grammar School, 12 per cent. the Wellington Boys' College, 7 per cent. Christchurch Boys' High School, 9 per cent. Otago Boys' High School. Fourteen per cent. of the girls attend the Auckland Girls' Grammar School, 10 per cent. Wellington Girls' College, 9 per cent. Wanganui Girls' College, 11 per cent. Christchurch Girls' High School, 8 per cent. Otago Girls' High School. The total number of secondary-school pupils represents 85 per 10,000 of the population.

A "STATISTICAL Record of the Progress of the United States, 1800-1911," is a small document which can be obtained from the U.S.A. Bureau of Statistics, Department of Commerce and Labour. This summary provides particulars as to the great American ports and as to the production of the chief commodities—wheat, cotton, copper, &c.

THE census returns give the population of the United States as 92 millions, which is an increase of 21 per cent. during the decennial period. New York State has increased in population by more than 1¼ millions, which is 25 per cent. Pennsylvania has made an increase of more than 1¼ millions (22 per cent.). A great increase in population (nearly 75 per cent.) has occurred in the three western States—Washington, Oregon, and California. The average density of population for the whole Federation is 31 per square mile; the district of Columbia has more than 5,500 per square mile. Of the separate States, Rhode Island has 509 per square mile, Massachusetts has 419, and the next three in order are New Jersey (338), Connecticut (231), New York (191). The least densely peopled State is Nevada, which has less than one person per square mile.

To the August issue of *The English Review* Lord Sheffield has contributed an article on "English Popular Education." The needs and political treatment of

English elementary education are treated with knowledge and impartiality. Lord Sheffield maintains that the two first items in any satisfactory scheme of educational settlement are, first, complete public management and control, with freedom from all ecclesiastical restriction in the schools required for the general education of the country; and, secondly, free use with full right of structural adaptation of all school buildings held in trust for education, where the trustees are not prepared to carry their schools on themselves either in accord with the conditions for public aid or at their own expense. The article is well worth the careful study of all concerned in education, and one at least of the impressions left will be that the management of English education is far less satisfactory than that of Scotland.

SCOTTISH.

THE debates this year in the House of Commons on the Scottish Estimates ranged, or rather raged, round educational questions. A concerted attack was made on Sir John Struthers for his administration of Scottish education, and a more prejudiced and ill-informed attack has seldom been heard in Parliament. The burden of the complaint seemed to be that he paid no regard to Scottish needs and Scottish traditions, but evolved from his inner consciousness an educational system which he imposed indiscriminately on all schools. To all with any knowledge of education in Scotland, no charge could be falser. On the occasion of every new educational advance he has consulted beforehand with representative bodies of teachers, and has frequently modified his plans in accordance with their views. Education has never had, and is never likely to have, an administrator more accessible and more sympathetic. In view of all this, it is little short of a scandal that throughout the two days' discussions scarcely a single word was heard of generous recognition of the enormous advances that have been made in national education during Sir John Struthers's tenure of office. That there are faults and flaws in the system all recognise, and it is right that they should be pointed out; but these, after all, are but spots on the sun, and do not detract one whit from the great ideals and achievements of Scottish education throughout the past decade.

DURING the Estimates' debate, Mr. Hogge, M.P., asked that something should be done to admit to inspectorships for secondary schools teachers who had some years of practical experience instead of confining them to raw young men whose only claim was a brilliant university record. The Secretary for Scotland, in reply, stated that he was quite at one with Mr. Hogge in disapproving of the present system. He hoped to be able to bring about a change by which they would secure as inspectors men of wider knowledge and experience than the present junior inspectors. This is a reform for which teachers have long contended. Several of the junior inspectors are men of wide outlook and of first-rate ability, but in almost every case they are of little value to the schools they visit owing to their lack of experience.

THE Secretary for Scotland, Mr. McKinnon Wood, received a deputation of Scottish Liberal members in one of the committee rooms of the House of Commons in support of the proposal to transfer the headquarters of the Education Department from London to Edinburgh. Mr. Munro Fraser, in making the principal statement, said that the proposal was supported by teachers and School Boards. It would be interesting to have the grounds on which this assertion was so confidently made. So far as we are aware, no body of teachers has declared in favour of the removal of the Department to Edinburgh. A few individuals have done so, but the great majority of teachers are either neutral on this question or strongly hostile to any change. In the early 'seventies both teachers and School Boards had an experience of an Education Department located in Edinburgh, and a more parochial and ineffective body was never known. The Secretary of Scotland's reply gave no support to the recommendation, and it is hoped that the last has been heard of this annually recurring motion, which is engineered by a small coterie for purely political purposes.

THE annual Report on Continuation Classes, which has just been issued by the Edinburgh School Board, should prove of interest and value to educationists all over the country. It contains much fresh and instructive matter on the general question of continuation-class organisation, the future of trade schools, and the possible revival of the best features of the old apprenticeship system. Edinburgh School Board has shown infinitely more enterprise and initiative in its administrative capacity than any other educational body in the country, and well deserves the tribute recently paid to it by the Education Department in these words: "The Department are gratified to note the generous developments of work which are proposed for the coming session, especially the steps which the Board are taking to make the organisation of trade and technical instruction more complete." From the figures given it would seem that fully two-thirds of all pupils between fourteen and seventeen years of age are accounted for in the continuation classes, and all this without any form of compulsion whatsoever. Seven years ago the total number of individual students in attendance at the Board's continuation classes was 3,494; to-day it is 10,755, an increase of more than 200 per cent. This result has been achieved through the hearty co-operation of members of the Board, teachers, and employers of labour. The report will amply repay the perusal of all who are interested in the training of adolescents.

RECENTLY a deputation, comprising practically all the Scottish Liberal Members, waited on the Secretary for Scotland in order to ask that more generous contributions should be made from the Treasury towards the cost of Scottish education. A strong case was made out for larger grants, as it was felt that the whole cause of education was being imperilled by the increasing burdens of local taxation. Sir Walter Menzies, who formed one of the deputation, now comes along with a series of statistics to

prove that the case was a very poor one indeed. It is a truly Gilbertian situation, and does not show the honourable member in a very favourable light. The figures he now gives should have been known to him before he set out on his former "passionate pilgrimage," and probably the kindest thing that can be said of him is that he has allowed himself to be made use of by others. According to the figures now given by Sir Walter Menzies, Scotland receives as Treasury grants £2 13s. 2d. per pupil in average attendance, as against £2 os. 1½d. in England. The charge to the local rates per pupil in average attendance in Scotland is £1 13s. 11d., as compared with £2 os. 2½d. in England. There are, however, several factors in the case which Sir Walter has omitted to take into consideration. The percentage of attendances is higher in Scotland than in England, and consequently the grants under this head must also be higher. The case of the voluntary schools is quite different in the two countries, and upsets all attempts at comparison. Finally, Scotland has again and again handed over for educational purposes money that has been used by the "predominant partner" for other local purposes. All this Sir Walter Menzies now reckons against her in order to bolster up the case for the Treasury.

IRISH.

THE scheme for scholarships for pupils from primary to secondary schools, which was dropped last autumn, has been revived. The Supplementary Estimates laid before Parliament shortly before the end of the session provide £10,000 for such scholarships, which will be open to all boys and girls under thirteen years of age who are attending national schools, and will be awarded, probably two in each county, on the result of competitive examinations held throughout the whole country. The examinations will not be entirely written, but will be conducted by the National Board's inspectors with the view of discovering intelligent children who are most likely to benefit by secondary education. The subjects of examination will be three: English or Irish, arithmetic, and a third to be chosen from those studied in the sixth standard. The scholarships will be tenable for three years, and are of two kinds: one kind, for country children, of £50 a year, tenable at boarding schools, and the other, for town children, of £20 a year, tenable at day schools. When these scholarships expire the holders are to be elected without further examination to County Council scholarships. Up to the present, most of the County Councils have made their scholarships tenable at the National University only, but Mr. Birrell, who has always expressed his disapproval of this limitation, is of opinion that they should be tenable at any one of the three Irish universities, and will only sanction the scholarship scheme if the County Councils accept his suggestion.

AN equally important announcement has been made by Mr. Birrell with regard to increased grants for secondary education. Last year he stated that the Chancellor of the Exchequer had promised him

£30,000 a year for intermediate teachers; but nothing more was heard of this, and the financial year closed without the grant being made. However, Mr. Birrell has now obtained £40,000 a year, to be distributed in a way to be settled by him after consultation with the proper authorities. His object, he said, was to raise the status of the lay teachers in Ireland, and he had prepared a scheme which he intended to publish. The scheme was not intended to be final, but only by way of a beginning. This is good news for Ireland, and once some such scheme is initiated great improvements will be possible in Irish secondary schools.

THE Intermediate Rules for 1913, of which some explanations were given in these columns last month, have been, with some justice, adversely criticised on two grounds: (1) the abolition of the preparatory grade, and (2) the new rules under which the exhibitions and prizes will be awarded. For a good many years students between the ages of thirteen and fifteen were eligible for examination in the preparatory grade, and the number examined last year was 4,000. The courses were introductory and the examination non-competitive, there being no prizes or exhibitions awarded. Under the new rules, students between thirteen and fourteen are excluded from the examinations altogether, and those between fourteen and fifteen are eligible for the junior grade. The danger is this. Whereas a smart pupil might formerly pass the preparatory grade when thirteen, and go on next year when fourteen to the junior grade, and another pupil of average, or less than average, ability would remain in the preparatory grade and pass the examination when fourteen, now there is likely to be a tendency to push all these students on and enter them when fourteen in the junior grade. If such should be the case, the abolition of the preparatory grade would prove to be a mistake.

WITH regard to prizes and exhibitions, awards have up to now been made on the marks obtained in English and four honour subjects, there being a qualification that the candidate, in order to obtain a distinction, must also gain honours, *i.e.*, 50 per cent. of the marks awarded on three honour papers. The new rules change this. The prizes and exhibitions will be awarded on the marks obtained in English and two honour subjects, and this will tend to increased specialisation. On the other hand, pupils will be required to obtain honours, not only in the two honour subjects in which the award is made, but also in two other honour subjects, and as in the middle and senior grades geometry and trigonometry are for purposes of prizes and exhibitions grouped together, mathematical students in these two grades will be compelled to obtain honours in five subjects. The new rules are in this respect likely to lead to dissatisfaction. It is a great pity that in the course of years some exhibition scheme has not been evolved which would prove generally satisfactory, and that we have again a new scheme which will be exposed to so much just criticism that it will in its turn probably give way to another this time next year.

WELSH.

AN interval of three years has elapsed since the code of regulations for public elementary schools was last revised as a whole. In the new code issued by Mr. Alfred T. Davies from the Welsh Department of the Board of Education several modifications are made, and the Board considers it desirable to state that it does not contemplate the alteration of Article 9, so as to disqualify for the post of head-teacher any teacher who was certificated before August 1st, 1910, on the ground that such teacher had not completed satisfactorily a course of training. The following regulations apply to Wales and Monmouthshire only: (1) The curriculum should, as a rule, include the Welsh language; (2) any of the subjects of the curriculum may (where the local circumstances make it desirable) be taught in Welsh, but it is not necessary that the Welsh language should be taught in every school or in every class; (3) where Welsh is the mother-tongue of the infants, that language should be the medium of instruction in their classes; (4) provision should also be made for the teaching, in every school, of Welsh history and the geography of Wales, and Welsh literature should also be included in the curriculum of higher elementary schools.

THE teaching of Welsh, it is noted, should follow generally the lines of the teaching laid down in the code for the English language, *viz.*, it should include "practice in speaking with clear enunciation, exercises in continuous oral narration, reading for information, both silently and aloud, and written composition." Throughout the course the reading books used by the scholars should include pieces of literary merit, some of which should be learned for recitation. In the higher classes silent reading should be the rule rather than the exception, and the scheme of instruction should include a wide course of reading under suitable guidance, with the aim of creating a capacity for systematic study and a taste for good literature. Instruction in grammar should be confined to the higher classes. If given, it should be directed to enable the scholars to understand the structure of the sentences which they speak, read, or write, and the functions of the words in those sentences, and should be as free as possible from technicalities.

THE Welsh Department of the Board of Education announces also that the Board has carefully considered the problem of the decrease of persons intending to become teachers in the public elementary schools, but for the present proposes to continue in force the existing regulations for the preliminary education of elementary-school teachers, subject to certain modifications. The Board has decided on the cancelling in Articles 3 (a) and 31 (c) of the words: "and must (except in the case of a candidate whose parent or guardian has declared a conscientious objection to the vaccination of his child) have been vaccinated"; and on the modification of Article 32, to the effect that a bursar, even if above eighteen, who has passed qualifying for recognition as an uncertificated teacher, will not be recognised by the Board unless

he has been for at least a year in a training college, or employed for a year as a student-teacher.

It is announced that a Welshman, keenly interested in, and anxious to encourage, higher education in Wales, who wishes to remain anonymous, has given the Chancellor of the Exchequer a sum of £10,000, of which £3,000 is to be allotted to the National Museum of Wales, £5,000 to the National Library of Wales, Aberystwith, and £2,000 to the University College of South Wales and Monmouthshire, Cardiff.

At the North Wales Summer School of Temperance, Hygiene, and Physical Training at Bangor, Dr. R. O. Morris, of Birkenhead, urged teachers to take an interest in the appearance and physique of the children in their charge. They should inspect by the dirty-neck parade, high-water mark parade, and the ear parade. He added with regard to teachers themselves: "I would dismiss every male teacher who neglects to shave and arrives at school with a stubbly growth on his chin and cheeks. And lady teachers should not go to school bedecked with jewellery, and buried in lace and frills. If you are economically, tastefully, and hygienically dressed, you will make a lasting impression upon your pupils."

THE GROWTH OF EDUCATIONAL IDEALS.

The Evolution of Educational Theory. By Prof. John Adams. vii+410 pp. (Macmillan.) 10s. net.

It is not often that one who undertakes to point out to practical teachers the merits and demerits of new publications is able to advise them unreservedly to read a new book on educational theory; but the appearance of Prof. Adams's volume furnishes the comparatively rare occasion. It forms the first instalment of what promises to be an important series of works on "The Schools of Philosophy," to be issued under the general editorship of Sir Henry Jones. This circumstance, which is of happy omen to the regular cultivators of educational theory, may cause the book to receive a more hesitant welcome from other members of the teaching profession. But those who know how lightly the writer wears his learning, never thinking it necessary that a philosopher should suppress any gift of humour that he happens to possess, and never mistaking obscurity for profundity, will be prepared for the assurance that even the non-philosophical reader may safely venture here. A trained intelligence, and an out-of-school interest in the deeper meanings and bearings of the educator's task, are, we think, a sufficient equipment.

In harmony with the general intention of the series, Prof. Adams treats educational theory from the historical point of view. First, however, we have three introductory chapters, one of which deals with the relations between theory and practice, the second with the possibilities and limitations of the pupil, and the third with the historical aspect of educational theory. A discussion of the possibilities of the prehistoric period is followed by a general account of educational theory up to the Renaissance. Before passing on to post-Renaissance theories, the author interposes a chapter on formal discipline as opposed to specific education, a problem which, in our opinion, he rightly regards as the most important of all for professional educators,

and another chapter on knowledge regarded as the educational organon. In his discussion of modern theories, Prof. Adams prefers to abandon the chronological order. Instead of taking the period at which each of the post-Renaissance theories was at its height, and giving a cross section of educational thought at that time, he takes up each of the theories—humanism, realism, naturalism, idealism, and the mechanical view—and shows its relation to the development of educational theory as a whole. A final chapter contains a general discussion of the present position and prospects of educational theory.

We have thought it best to give first a brief and non-critical summary of the contents of this undoubtedly important book. We are not sure that the author did well to abandon the chronological order in dealing with the later theories, though we quite agree that his plan lends itself more easily to clear exposition, and avoids the common mistake of forcing individual thinkers into a preconceived scheme of development. But we think there can be no question that Prof. Adams's sanity of judgment, his rare combination of philosophic insight with experience of educational affairs, and his subtle power of seeing the connections of his subject with other social movements, both past and present, have contributed to the production of a book which will win its way to favour among thoughtful teachers, and will become a standard text in our training colleges.

BIBLE TEXT-BOOKS.

(1) *The Cambridge Bible for Schools and Colleges. Galatians.* Edited by A. Lukyn Williams. lii+127 pp., with map. (Cambridge University Press.) 1s. 6d. net.

(2) *The Smaller Cambridge Bible for Schools. Judges and Ruth.* By John Sutherland Black and A. W. Streane. 178 pp., with map. *I. Kings.* By T. H. Hennessy. 184 pp., with map. *II. Kings.* By T. H. Hennessy. 184 pp., with map. *Proverbs.* By J. R. Coates. 122 pp., with map. *Joel and Amos.* By J. C. H. How. 119 pp., with map. *The Acts.* By H. C. O. Lanchester. 188 pp., with map. (Cambridge University Press.) 1s. each net.

(3) *St. Matthew.* By T. Walker and J. W. Shuker. xxviii+122 pp., with two maps. (W. B. Clive.) 1s. 6d.

(4) *Acts of the Apostles.* Part ii. By W. H. Flecker. xxiv+72 pp., with two maps. (W. B. Clive.) 1s. 6d.

(5) *Patriarchs and Prophets.* By James Smith. xi+162 pp. (Macmillan.) 6d. net.

(6) *The Life and Teaching of Jesus.* By Edith E. Read Mumford. xii+160 pp., with map. (Longmans.) 1s. 6d. net.

MR. WILLIAMS'S book on Galatians (1) is a remarkably virile and workmanlike performance. The author in his preface lays stress on the importance of this Epistle to the understanding of the working of St. Paul's mind, and to a grasp of the true character of the Gospel. He does not accept Van Manen's contention that the Epistle could not have been written by one who lived so near the time of the Crucifixion as St. Paul, but agrees rather with Pfeleiderer that the theology of the Epistle, "which overthrows the Jewish religion by the methods of proof drawn from the Jewish schools, is perfectly intelligible in the case of the historic Paul." Mr. Williams treats the text throughout in an ample and attractive manner, burking no difficulties.

To edit a book like *Judges* (2) for use in schools

is a difficult task. Many barbarous acts which are there commended give pause, and will ever give pause, to the modern girl and boy. The editor inadequately meets such genuine moral difficulties as the slaying of Sisera by saying they are judged too much by modern standards. What puzzles the young reader is not that barbarous acts took place in a barbarous age, but that such acts are represented as divinely approved. Dr. Streane notes the striking contrast between the lawlessness of Judges and the serene atmosphere of Ruth. It certainly seems a pity to continue to issue such books as *Kings* in the Authorised Version, unsuited in many respects for young readers. Mr. Coates's comments on *Proverbs* are of the slenderest kind, and he seems to have missed in the main a great opportunity to render more attractive one of the most inherently attractive books of the Bible. Mr. Lanchester's "Acts" (2) is a remarkably lucid and painstaking volume. The notes are full, clear, and interesting. The introduction includes an excellent series of short notices of the principal people mentioned in the Acts.

Both the introduction and notes in Messrs. Walker and Shuker's *St. Matthew* (3) are in the condensed and businesslike manner we are accustomed to expect in the University Tutorial Series. In addition to the maps, there are useful plans of Jerusalem and Herod's Temple. The edition is intended primarily for "Locals" candidates. The notes are not printed on the same pages as the text, but follow in a body at the end. What has been said of *St. Matthew* may be said of Mr. Flecker's "Acts" (4), except that the introduction is not quite so adequate, and might with advantage have included some notice of the principal Jewish sects. The book deals only with chapters xiii to xxviii.

In "Patriarchs and Prophets" (5) Mr. Smith gives us a selection of Old Testament stories in modern English. The book is a companion volume to his "Life of Jesus Christ." Mr. Smith's preface is written from Bombay. Certainly the book will have a special value in a land where archaic and obsolete English expressions present considerable difficulties. The wording of the Bible is closely followed, changes being made only when obviously necessary.

"The Life and Teaching of Jesus" (6) is a series of daily Gospel readings for children under twelve. "Portions chosen from the three Synoptic Gospels have been woven into a continuous whole, a whole which does not attempt to be what is usually termed a 'harmony,' yet which gives the child a harmonious picture of Jesus, as He lived and taught." The work is well done, and the printing, paper, and binding leave nothing to be desired.

EDUCATION AND PUBLIC HEALTH.

Education and Preventive Medicine. By Dr. Norman Ditman. 73 pp. Charts and Diagrams. (New York: Columbia University Press; Oxford University Press: Henry Frowde.) 1s. 6d. net.

DR. DITMAN has been well advised in responding to requests for this republication, in a more generally accessible form, of the supplement originally contributed by him to vol. x., No. 3, of *The Columbia University Quarterly*; for while some of the facts which he adduces in illustration of his plea for the need of a school of sanitary science and public health are now relatively ancient history, their value is unimpaired, and the arguments which they point are still as cogent as ever.

It is indisputable that up to the present an immense

amount of time, labour, and money has been consumed in dealing with the effects of the various diseases to which humanity is liable, and in attempts, more or less successful, to cure these effects, while comparatively little has been achieved towards preventing them by the removal of their chief sources or primary causes. The few brilliant examples which show such striking success in the latter direction only serve to throw into more prominent relief the magnitude of that deplorable mass of loss—in life, health, and wealth—which is still waiting to be dealt with.

During our own Boer war the British Army lost 7,991 men from typhoid fever alone, the number dying from wounds received in battle being 7,852. During the Cuban war, one-fifth of the American force was laid by with typhoid. In General Oku's army of 100,000 men, there were only 187 cases of typhoid throughout a seven months' active campaign, during the war with Russia. Moreover, in the same war the Japanese reduced the cases of dysentery to 6,624, as compared with 12,052 during their war with China, of cholera to none from 7,667, and of malaria to 1,257 from 41,734, and this notwithstanding the fact that the Japanese troops engaged in the war with Russia numbered three times the total engaged in the Chinese war. While, on the naval side, Takaki's investigation into the cause of beri-beri—which had impaired the efficiency of the Japanese fleet by almost 50 per cent. during previous years—resulted in the complete abolition of this disease from the Japanese ships from 1886 to 1893, and not a single case developed during the war with Russia amidst the floating force of twenty-five thousand men. In this war, the enlightened and educative methods of the Japanese reduced the deaths due to disease as compared with those due to battle to 1 to 4. In the best-managed campaign preceding this, the proportion was reversed, being approximately 4 to 1. And in the Cuban war, the ratio amongst the American troops, where there was little attempt to prevent disease, reached the appalling figure of 14 to 1.

The Japanese method costs money; its magnificent results were accomplished by careful education of the officers of her army and navy in the essential principles of sanitation, and these results repaid their cost many times over. The same principles are applicable with no less success to civil life. What is true of typhoid, cholera, dysentery, and malaria is equally true of smallpox, tuberculosis, yellow fever, scurvy, rabies, plague, and diphtheria, and is true also of all the common diseases of infancy and early life, of much preventable blindness, and numerous other "common" illnesses; applicable, therefore, to the poverty and distress which result from them.

Radical measures for the protection of a people from the inevitable effects of its own ignorance and carelessness cannot be undertaken lightly. State remedies cannot be applied in advance of public opinion, which is difficult to rouse and slow to move. The education of a vast community, the overcoming of prejudice, and the rousing of it to take action, even when convinced, needs long and prodigious effort. But the task is well worth while. There can be no doubt but that inestimable advances could be secured for the near future of any people that would undertake the task of instilling into the minds of every member of its rising generation the simple principles which underlie the successful safeguarding of health, and which would take measures to secure that all those whose careers must bring them into touch with the physical needs of modern life were at least thoroughly grounded in the essentials of sanitation.

Dr. Ditman outlines the scope and methods of such a school of preventive medicine, which, to some extent, has been already established in connection with Columbia University.

THE STUDY OF THE LYRIC.

(1) *Lyrical Forms in English*. Edited, with introduction, by N. Hepple. 272 pp. (Cambridge University Press.) 3s. net.

(2) *English Literature: Modern*. (Home University Library.) By G. H. Mair. 256 pp. (Williams and Norgate.) 1s.

(3) *Lyrical Ballads, 1798*. Edited by H. Littledale. 252 pp. (H. Frowde.) 3s. 6d.

MR. HEPPLE (1) has done something new, but he has not done enough of it. His own contribution to the book consists of forty pages; the rest is text chosen indeed by him, but ready to all people's hands. The book is a study of the lyric, and it seems to us if his introduction had been greatly lengthened and the text curtailed the object would have been better attained. Song-lyric, sonnet, ode, idyll, and elegy are all dealt with; and at the outset many a critic will question the lyrical character of some of these forms. But lyric may be said to embrace all that is not epic or dramatic. To say that all lyric work may be divided up into motive, thought, and conclusion appears unwise; poets are the last persons to be bound by such rules; the "Hound of Heaven" and a thousand other poems disprove it. Again, to view the sonnet structurally and not emotionally is to deal with only one-half of the sonnet-values; and the upward sweep of the best sonnets to the majestic finish is more worth consideration than octet and sestet. Mr. Hepple is a bold editor; he disapproves of part of Lycidas and says so, and he has collected many little-known songs. Surely "Britannia rules the waves" contains the usual misprint.

Among new and breezy critics must be counted Mr. G. H. Mair (2), who in a few pages is quite as suggestive as Mr. Masefield's Shakespeare. Mr. Mair thinks modern English literature begins with the Renaissance. This is a pity, for we badly want a criticism on modern English literature beginning, say, with the death of Tennyson. A few curious dicta may be mentioned: the Bible is "early English"; "all people read the 1611 version on its appearance"; "Sidney's adoration of Lady Rich was a figment of the mind"; "feminine psychology was unknown before Clarissa"; but these do not show the critic at his best. The book teems with such disputable statements; that makes its stimulus. There are a few printers' slips: *quin sit comoedia* is not Latin; the Eugenioen hills are nowhere; Ben Johnson is strange; "For God's sake hold your tongue and let me live" is not what Donne wrote, and "when the extravagant and erring spirit hies to his confine," instead of being a "canon-breaking line" is not a line at all, but a patchwork of parts of three, misquoted. These are specks, however, and the book is fully alive; but it is not on modern literature. The beginnings of modern English literature are nearer 1798.

Lyrical Ballads (3) is here reprinted as it saw the light a hundred years ago. It is a delightful reprint; the old cover, alas, is wanting. But the Ancient Mariner seen, as it rarely is, in its first form, and the Mad Mother and Tintern Abbey look at us as they looked at our grandfathers. Considering the importance of 1798, this book ought to be in all school libraries. It contains Wordsworth's 1800 and 1802 prefaces, but not the notorious remarks about the ancient mariner.

RECENT SCHOOL BOOKS AND APPARATUS.

Modern Languages.

Direct French Course. By H. M. Chaytor. x+175 pp. (Clive.) 1s. 6d.—The reform teacher can no longer complain that he has few books to choose from; every year brings two or three fresh direct French courses. Mr. Chaytor is a teacher of experience, and his book does him credit. The text is well chosen; much of it is based on pictures, some of which appear to have been badly reproduced, to judge from the copy before us. The vocabulary is very extensive, perhaps more than is desirable for beginners; on the other hand, it will be found well to add further exercises in the second edition. Unlike the majority of such books, this course gives no help to the pronunciation. "Hints on Method" are supplied gratis to school teachers, but no copy was sent for review.

É de Laboulaye, Poucinet. Edited by P. Shaw Jeffrey. viii+88 pp. (Macmillan.) 1s.—This is a capital addition to Mr. Siepmann's Primary French Series. The well-known story is very competently edited by Mr. Shaw Jeffrey. In addition to notes and a vocabulary, there are several appendices, including a *questionnaire* and some useful reform exercises on syntax and idioms.

P. Sébillot, Contes des Marins de la Haute-Bretagne. Edited by J. E. Mansion. 64 pp. (Harrap.) 6d.—Four short stories of moderate difficulty are included in this little volume. There are exercises on the text (a fair proportion on reform lines, but too many referring to single words, not in sentences), passages for retranslation, some subjects for free composition, and a glossary of words in the order in which they occur in the text.

Landmarks in French Literature. By G. L. Strachey. 256 pp. (Williams and Norgate.) 1s. net.—The title exactly describes the scope of the book, which is an admirable piece of work. The writer has an unusual sense of the relative importance of men and books in French literature, and a fine power of appreciating what is typically French. He never seems to allow the natural prejudices of an English critic to sway him; this is particularly striking in the pages he gives to the age of Louis XIV. The style is forcible and picturesque, without extravagance. It is the kind of book that may be recommended to every person of culture, and that may well be placed within reach of sixth-form boys and girls, for it cannot fail to stimulate interest in the great writers of France.

Daudet, Le Petit Chose vient à Paris. Edited by T. Dyson. 48 pp. (Blackie.) 4d.—A brief extract from "Le petit chose," with a biographical note, notes, passages for retranslation, and subjects for free composition. Mr. Dyson has done his work very creditably; but we should have preferred a rather ampler treatment of the last section, even if that had necessitated the omission of the passages for retranslation.

Classics.

A First Year Latin Book. By John Thompson. xviii+228 pp. (Cambridge University Press.) 2s.—There are good points in this book. One is that the vocabulary is based on Lodge's, and is therefore (within limits) scientific; it contains 500-600 common words. Against this may be set that "common words" means common in certain selected books of Virgil, Caesar, and Cicero, not common (as they

should be) in the daily needs of the learner. Hence we have *acies*, *arma*, *arx*, *bellum*, *castrum*, *consul*, and so forth, but not *fenestra* (*porta* is here, with the meaning "fate"), *cista*, *calcei*, *pilleum*, *digitus*, *tabula*, amongst many others that are needed. The whole vocabulary is of a kind that must be unreal to a boy or girl. Another good point is that long vowels are marked; reading aloud is also laid down as necessary; and the grammar is recapitulated at the end. On the other hand, the subject-matter is incoherent, besides being uninteresting. Finally, the whole system is based on translation, which is fatal to the understanding and use of idiom. The writer himself suffers from this, for a large number of his phrases are obviously English, as *Equus saxa templo portat* (p. 32), *annus pericula loco parat* (32), *oppidum saxis perturbatis* (33), *impedimenta moram praesidio parant* (36), *patria imperia ultima provinciis nuntiat*, *praelium diu durum est* (41), *es puer bonus, mane et videbis* (78), *tempestate mala regionis vestrae* (89).

Isocrates, Cyprian Orations: Evagoras, ad Nicoclem, Nicocles aut Cyprii. Edited, with Introduction and Notes, by E. S. Forster. 160 pp. (Clarendon Press.) 3s. 6d.—I do not like thee, Doctor Fell! There is no doubt that Isocrates is dull: cold, artificial, and a rhetorician, not an orator. Useful information may be had from Isocrates, as well for antiquity as for Greek prose: but with so many real live men to read, why read a rhetorician? Demosthenes and Lysias alone give plenty of variety for school work. But the undergraduate may well spend a little time on Isocrates: and if he wants notes Mr. Forster gives him good notes, nor will he find any others in English on these speeches. But even Mr. Forster gives too much elementary instruction: on *Φθάνειν* for example, on *καλοὶ κάγαθοί*, on *ποτερον*. "Ὅσφ πλέον ἤμισυ παντός!"

Proceedings of the Classical Association, January, 1912. Vol. ix. 204 pp. With Rules and List of Members. (Murray.) 2s. 6d. net.

Recommendations of the Classical Association on the Teaching of Latin and Greek: being a Series of Reports by Committees. viii+60 pp. (Murray.) 1s. net.

The Classical Association goes on its way. It has played a useful part in uniting friends of the classics, and has practical influence through its reports; more than one series of books professes to owe its existence to these reports by committees. It is useful to have all the reports in one volume, for probably everyone has lost his own. But we hope sincerely that the association will not take these as a canon. They are only tentative, they are not very courageous, and they say nothing of method—one of the most crucial conditions of success. We want more, in short; reports revised and improved.

The Proceedings contain discussions on the study of Greek and the marking of hidden quantities, where it is odd to find scholars who urge that these should not be marked; they need not be noticed, and they help those who desire them. There are papers on Homeric dress and on the ritual of Dionysius, and a pleasant presidential address.

The Story of the Roman People. By E. M. Tappan. vi+256 pp. (Harrap.) 1s. 6d.—This is a readable little book, well suited to young learners. It has very little constitutional history, and plenty of stories, and—a great merit—it summarises the imperial history after Augustus down to the taking of Constantinople by the Turks in 1453. We can recommend the book.

A Manual of Latin Word Formation for Secondary Schools. By P. R. Jenks. vi+82 pp. (Heath.) 1s. 6d.—This is a very useful little book, which we heartily recommend. It is only a pity that American scholars are so obsessed with certain books of Cæsar and Virgil and Cicero that everything is based on them; it is a serious defect in American study. The words are classified as nouns derived from verbs, nouns, or adjectives; adjectives from verbs or nouns; verbs from nouns, adjectives, or verbs; adverbs, compounds, compounded prepositions, and general derivatives. We suggest that rules might well be given for the form of a preposition when compounded—whether, for example, *adl-* or *all-*, *inl-* or *ill-*. *Magis volo* (p. 46) should be *mage volo*, and *discō* has the *i* short (p. 40), one of three exceptions to the rule.

English.

Matter, Form, and Style. By Hardress O'Grady. vi+125 pp. (Murray.) 2s.—It is with quite unusual pleasure that we welcome this book. It is, so far as we know, the first attempt to teach English composition as an artistic expression of original thought on a thoroughly scientific and graduated system. This may sound exaggerated praise; we believe it to be sober truth. The plan followed is simplicity itself, and is evolved from the sound first principle—too often forgotten by weary teachers—that writing is a selective process. The pupil here is shown *how* to write, by analysis, by comparison, and by synthesis. Above all, he is taught to write about things which interest him and not about things which—according to the preconceived ideas of maturer and more pedantic minds—ought to interest him. We are given also a splendid basis for the training of literary taste. We are much mistaken if Mr. O'Grady, who, by the way, makes full acknowledgment of the sources of his inspiration, does not by the publication of this unpretentious little book revolutionise the teaching of composition in English schools; at any rate, no one will ever be able reasonably to say again that English composition cannot be taught.

Oxford Industrial Readers. By A. O. Cooke. *A Visit to a Coal Mine*. 88 pp. *A Day in an Ironworks*. 78 pp. Illustrated. (Frowde.) 8d.

This series supplies a want. They are edited by Mr. A. O. Cooke, and published by Mr. Frowde. Two volumes have reached us, "A Visit to a Coal Mine" and "A Day in an Ironworks." There is scarcely any limit to the list which might be added, and, so far as we know, there is nothing of the kind in the market. The books are copiously illustrated, the text is clear and not too easy for the boy of twelve or thirteen, and the information is quite of to-day. The shipyard, the toy-maker, the glass-blower, the waterworks, would all afford fascinating reading to the children who want to know how things are done.

Barbarian and Noble. By M. F. Lansing. 183 pp. (Ginn.) 2s.—This book attempts to bring in story form the mediæval builders of the modern world before the child. The early Middle Ages are generally a closed book to schools; Drusus and Alaric, Attila and Clovis, are familiar in later days only when Gibbon's magic pen touches them. But how easily can the dark ages be made bright by the storyteller, and how easily may his method, once properly learnt, be applied not only to all history, but even to those parts of history which are considered dull! This book is vivid, and is an excellent introduction to Emerton, and later to Hodgkin, fascinating writers on the same period. There are five other volumes in the series.

The Torch. Eight Lectures delivered at Boston in 1903 by T. E. Woodberry. 217 pp. (New York: The Macmillan Company.) 5s. 6d. net. Also *Great Writers*, by the same author, and price the same.—A new note is struck in Prof. Woodberry's works. The very first page insists on a new thought, and insists on the readers remembering it. The chapter on man and the race is itself a bit of literature. Only when a live book comes from a live teacher far away do we get this stirring of conventional insular criticism. The two chapters on the Titan myth seem to us, as all other criticism seems, not to touch the central argument of the "Prometheus," whether you try to understand Æschylus or Shelley, though the essay on Shelley himself comes near it. We are grateful to the writer for insisting that in literature there is no such thing as time or chronology. This volume is the more important, but the second, "Great Writers," is as interesting, and new lights shine on Scott, Cervantes, and Shakespeare.

History.

A History of the British Constitution. By J. H. B. Masterman. xv+291 pp. (Macmillan.) 2s. 6d. net.

The Groundwork of British History. By G. T. Warner and C. H. K. Marten. xiv+749 pp. (Blackie.) 6s., or in two parts 3s. 6d. each. (The division is at 1603.)

He who has read Prof. Pollard's little book in the Home University Library, and has been stimulated thereby to desire a further knowledge of his country's history, should read these two books in the order we have named them. Mr. Masterman will tell him the story of the Constitution in such a way that he will be prepared to understand the exposition of the present workings thereof which occupies the last quarter of the book, and when he has thus come to the knowledge absolutely necessary for the understanding of our own times and for the reasonable exercise of his privileges as a citizen, he can then turn to Messrs. Warner and Marten's book for the circumstances in which the Constitution grew. Mr. Masterman writes more especially for the adult. The other book is intended primarily for schools, but they are equally good for either class of students. Only the reader of Mr. Masterman should know that in the earlier stages of the story he is still more under the influence of Stubbs and his school than is now considered correct under the teaching of later scholars in feudal and pre-feudal days, and that when he writes "Church" he often means "clergy." Similarly, Messrs. Warner and Marten are not always up to date in their information. Otherwise we should have nothing but praise for their book. The method is excellent. They have broken away from the chronological order, separating events that are separate and combining those that are combined. The result is an eminently readable and useful book, often throwing much-needed light on events that are generally obscure.

The Civilisation of China. By H. A. Giles. 256 pp. (Williams and Norgate.) 1s. net.—Prof. Giles has lived many years in China, and knows the people well. In this book he gives us some of the results of his long stay, and, sketching the history of the country, he diverges constantly and pleasantly into descriptions of its life and thought. The general impression we have after its perusal is that what we thought we knew about China is mostly wrong, and that the stories which we would not believe because they seemed improbable are mostly right. The book is therefore most useful, and should be studied by all.

Mathematics.

The Theory of Determinants in the Historical Order of Development. By T. Muir. Vol. ii. Period 1841-1860. xvi+475 pp. (Macmillan.) 17s. net.—The first volume of this work covered a period of 150 years. During the whole of the eighteenth century the development of the theory of determinants was due principally to French analysts. Important contributions were made by Germans during the early years of the nineteenth century, and now in the twenty years covered by the present volume, the work of two English mathematicians forms the predominant feature. It was in 1841 that Cayley published his first paper, entitled "On a Theorem of the Geometry of Position." The value of this paper does not consist so much in the theorem itself as in the manner of proving it. Here appear for the first time the now universally adopted notation of a square array between upright lines and a demonstration of the theorem of the multiplication of determinants, Cayley stating cautiously that he believes it to be new. In subsequent papers he invents and discusses the properties of permutants, matrices, and skew determinants. There are altogether in this volume forty-eight entries against the name of Cayley. Next in number and importance are the contributions of Sylvester, who is credited with twenty-nine papers. The most important of the foreign workers during this period are Brioschi, Hesse, and Bruno, who are credited with twenty-six, sixteen, and ten papers respectively. It is also worthy of note that to an Englishman, Spottiswoode, is due to the first text-book on the subject, "Elementary Theorems relating to Determinants," which appeared in 1851. Many of the papers noticed in this volume are of small importance, and in such cases Dr. Muir gives a bare summary of the contents; but the leading papers are described, very fully, sometimes a change of notation being made, in order to render them more easily intelligible. One chapter deals with determinants in general, while the others are devoted to special types. Readers therefore have no difficulty in finding what has been done in connection with any particular branch of the subject, and in seeing in what direction there is room for further research. Dr. Muir has performed his task with great skill and care, and no doubt the subsequent volumes will prove as interesting as those which have already appeared.

The Calculus for Beginners. By W. M. Baker. viii+166 pp. (Bell.) 3s.—This is a thoroughly practical introduction to the calculus, well suited for the use of students who are proceeding to study mechanics, physics, or engineering. It is doubtful, however, whether it is quite the right kind of book to place in the hands of boys who do not intend to specialise in mathematics or science. There is a strong feeling amongst teachers that it is desirable that even these should acquire a knowledge of the fundamental notions of the calculus, but at the same time it is not necessary that they should acquire great manipulative skill. It is sufficient for them to work a small number of carefully selected typical examples. The book before us, however, is essentially one by means of which a good working knowledge of the subject may be obtained, and the boy who has worked the 750 examples here given will have surmounted the mechanical difficulties of differentiation and integration, and be ready to pass on at once to the more advanced theory. The statement on p. 6 that $\Delta y/\Delta x$ has always a limit for every kind of function is not correct.

E E

Miscellaneous.

"*Third Hand*" *Thumb Magnifier*. In two qualities. No. 1, cardboard case, 2s. No. 2, with leather cover for lens; 6s. (Third Hand Patents, Ltd.)—This very handy instrument consists of a magnifying glass mounted on a special clip which can be clasped on the left thumb. This device enables an article to be examined under the lens, while leaving both hands free for use. The lens can also be clasped on any finger, enabling small articles to be examined on the palm of one hand and moved or turned by the other. No. 1 has a lens mounted in imitation tortoiseshell rim with a nickel-plated steel bar and clip, which folds for the pocket. The lens can be focussed by being moved up and down the bar. No. 2 has a high-power lens, with German silver rim and a round bar and ball joint, giving universal motion. The lenses should be of real service in classes engaged on the study of elementary botany.

The Charterhouse of London, Monastery, Palace, and Thomas Sutton's Foundation. By W. F. Taylor. xiv+284 pp. Illustrated with photographs and studies by the author. (Dent.) 7s. 6d. net.—This is a history of a foundation, and a building, which have passed through several stages. We think of it mainly as a school; but for Thackeray few would have any idea of the brotherhood, and even before that comes the monastic establishment. Mr. Taylor has found us a number of entertaining stories of those days. We like best the greedy brother, who murmured because he was not filled, and said he would rather eat toads than food of that kind. Lo! a wonder. The righteous Lord sent him so great abundance of toads that they filled the pavement of his cell in heaps, crawling and leaping after him whithersoever he went about his cell. We will not forgive Mr. Taylor for trying to euphemise this goodly moral. Of a different kind is the story of the struggle of the monks to retain their foundation, and its defeat. There exists a detailed account of the spoliation. After this it was Sir Edward North's palace, where he was visited by Queen Elizabeth; Sir Thomas North, Plutarch's translator, was his son. The Duke of Norfolk bought it from North, and kept great state there. Most interesting of all is the story of the foundation by Thomas Sutton, one of those noble merchants and men of the world who gave England her education. Would that there were some like them to-day! Those men spent themselves in the public service, and the wealth they earned was devoted to making the next generation wiser and better. With the letters and anecdotes here given, Sutton lives before us as a man. Unfortunately, there is very little space to discourse of the school. But the book will attract many more than those who have been educated on his foundation.

Herbert Kynaston: a Memoir, with Selections from his Occasional Writings. By the Rev. E. D. Stone. xxxiv+98 pp. (Macmillan.) 3s. 6d. net.—Kynaston's friends were many, and they will be pleased with this little book. Mr. Stone gives all that it is necessary to know of his life, with the aid of friends at Durham, who, it must be admitted, are rather thin. Most of the book consists of his verses in English and other languages, and a few hymns. His English translations are often stiff; we can scarcely recognise the homely Cyclops in these artificial verses; but his Latin and Greek are admirable, especially the pieces of wit, although the last often depend on a pun between English and Greek. We shall not pick out the plums; let our readers buy the book and pick for themselves. But why was the neatest of all omitted—on him who *ἐν ταῖς Ἀχάρναις λαιδορεῖ γεωργὸς ὄν?*

EDUCATIONAL BOOKS PUBLISHED DURING JULY, 1912.

(Compiled from information provided by the Publishers.)

Modern Languages.

- "Contes d'Hier et d'Aujourd'hui." Second series. By J. S. Norman and M. Charles Robert-Dumas. 158+viii pp. (Bell.) 2s.
- "Austerlitz." (Little French Classics.) By Adolphe Thiers. 48 pp. (Blackie.) 4d.
- "Mémoires de Saint-Simon." (Little French Classics.) 48 pp. (Blackie.) 4d.
- "Eigensinn." (Little German Classics.) By Roderick Benedix. 48 pp. (Blackie.) 6d.
- "George Halay." Being chapters from the novel "Verhängnisse oder Abenteuer eines amerikanischen Bräutigams." (Little German Classics.) By Fr. Gerstäcker. 48 pp. (Blackie.) 6d.
- "Helden des Alltags." (Little German Classics.) By Ernst Zahn. 48 pp. (Blackie.) 6d.
- "Picciola." Reissue with Vocabulary. By H. B. Saintine. x+330 pp. (Cambridge University Press.) 2s.
- "A New French Grammar." By E. A. Sonnenschein. 211 pp. (Clarendon Press.) 2s. 6d.
- A. Dumas, "Aventures du Capitaine Pamphile." (Oxford Junior French Series.) Edited by R. A. Raven. 96 pp. (Clarendon Press.) 1s.
- Victor Hugo, "Cosette," Episode tiré de "Les Misérables." (Oxford Junior French Series.) Edited by Marc Ceppi. 96 pp. (Clarendon Press.) 1s.
- Henri Noussanne, "Le Château des Merveilles." (Oxford Junior French Series.) Edited by R. J. E. Bué. 96 pp. (Clarendon Press.) 1s.
- "New Junior French Reader." For Junior and Middle forms of schools, and specially adapted to the requirements of the Cambridge Junior Local Examination. By J. P. R. Marichal and L. J. Gardiner. 210 pp. (Clive.) 2s.
- "Elementary German Grammar." By Prof. E. C. Wesselhoft. 276 pp. (Heath.) 2s. 6d.
- "A New German-English and English-German Dictionary." By Max Bellows. 820 pp. (Longmans.) 6s. net.
- "A Primary German Course." By Otto Siepmann. 344 pp. (Macmillan.) 3s. 6d.
- Massard's Series of French Readers. Junior Series. "La Mare au Diable." By George Sand. 182 pp. 1s. 6d. Senior Series. "Bug-Jar-Gal." By Victor Hugo. 222 pp. 2s. (Rivington.)
- "Grammaire Française Pratique Basée sur la Méthode Inductive." By W. G. Hartog. New and revised edition. 256 pp. (Rivington.) 3s. 6d.
- English: Grammar, Composition, Literature.**
- "The Tree of Empire. A Reading Book for Middle Forms." 256 pp. (Edward Arnold.) 1s. 6d.
- "Hereward the Wake." (Additional volume in Arnold's English Literature Series.) Abridged and edited by W. E. Candy. 256 pp. (Edward Arnold.) 1s. 6d.
- "Matriculation Précis (and a Key)." By S. E. Winbolt. x+68 pp.; key, 28 pp. (Bell.) 1s. net; with key, 1s. 6d.
- "A Preparatory English Grammar." New edition. By W. Benson. vi+62 pp. (Bell.) 1s. net.
- "The Story of Enid, from Tennyson and the Mabinogion." Edited by H. A. Treble. xii+96 pp. (Bell.) 10d.
- "Burke's Speech on Conciliation with America."

Edited by Prof. J. Morrison. xvi+128 pp. (Bell.) 1s. 6d.

"A Posy of Pleasant Delights." For Children. Gathered from the Golden Garden by A. E. Rouse and W. H. D. Rouse. 144 pp. (Blackie.) 1s. 6d.

Milton's "L'Allegro and Il Penseroso." Edited by H. M. Percival. 48 pp. (Clarendon Press.) 1s.

"Norse Tales." Edited by E. Thomas. 160 pp. (Clarendon Press.) 2s.

"Selections from Malory." Edited by H. Wragg. 158 pp. (Clarendon Press.) 2s.

"Graduated Passages for Reproduction." Edited by W. L. Banks. 192 pp. (Clarendon Press.) 2s.

Shakespeare's "Richard II." Edited by Henry Newbolt. 224 pp. (Clarendon Press.) 2s. 6d.

"Greek Legends." By M. A. Hamilton. 192 pp. (Clarendon Press.) 2s.

Shakespeare, "As You Like It." (Junior Shakespeare Series.) Edited by A. R. Weekes and F. J. Fielden. 151 pp. (Clive.) 1s. 4d.

Shakespeare, "Macbeth." (Junior Shakespeare Series.) Edited by S. E. Goggin and F. J. Fielden. 151 pp. (Clive.) 1s. 4d.

Milton, "Comus." Edited by S. E. Goggin and A. F. Watt. 94 pp. (Clive.) 1s.

Scott, "Marmion." Edited by F. Allen. 230 pp. (Clive.) 1s. 6d.

"New Guide" Readers. Grade I., "The Queen Bee," and other Folk Tales from the German. 32 pp. In paper, 2d.; in cloth, 3d. Grade II., "The Blue Bird, a Fairy Tale from the French." 40 pp. In paper, 2½d.; in cloth, 3½d. (Birmingham: Davis and Moughton.)

"Simple Manual of Grammar on Organic Lines." By Charles and Arthur Locke. 174 pp. (Gilli.) 1s. 6d.

"Sir Guy of Warwick." By Gordon Hall Gerrould. (Harrap.) 1s. 6d.

"Stories of Pendennis and the Charterhouse." By Amy Barter. (Harrap.) 1s. 6d.

"Judith, Phoenix and other Anglo-Saxon Poems." By J. Lesslie Hall. 119 pp. (Harrap.) 2s. 6d. net.

"The Elizabethan Translations of Seneca's Tragedies." By E. M. Spearing. 78 pp. (Heffer.) 2s. net.

"Atalanta's Race and the Proud King." (From "The Earthly Paradise.") (Longmans' Class-books of English Literature.) By William Morris. Edited with an Introduction and Notes for the use of Schools and Colleges. (Longmans.) 1s.

"History of English Literature from 'Beowulf' to Swinburne." By Andrew Lang. (Longmans.) 6s. Also in five parts. Part I., "Early and Mediæval Literature," 1s. 4d.; Part II., "Chaucer to Shakespeare," 1s. 4d. Part III., "Elizabethan and Jacobean Literature," 1s. 4d. Part IV., "Eighteenth Century Literature," 1s. 4d. Part V., "Nineteenth Century Literature," 1s. 6d.

"An Anthology of English Prose." Part I., 1332-1740. By Annie Barnett and Lucy Dale. With a Preface by Andrew Lang. 2s. 6d. Part II., 1741-1892. Cheap issue. 3s. 6d. (Longmans.)

Peacock, "Maid Marian." (English Literature for Secondary Schools.) Edited by F. A. Cavenagh. 150 pp. (Macmillan.) 1s.

"A Persian Hero. Stories from the 'Shah Nameh.'" (English Literature for Secondary Schools.) Edited by Wallace Gandy. 136 pp. (Macmillan.) 1s.

"Modern English Grammar, with Chapters on Idiom and Construction." By J. C. Nesfield. 276 pp. (Macmillan.) 2s.

"Key to Modern English Grammar." By J. C. Nesfield. 130 pp. (Macmillan.) 2s. 6d. net.

Diaconus, "Exercises in the Meaning of English." By George G. Loane. 196 pp. (Macmillan.) 3s. 6d.

The Tudor Shakespeare: "Henry IV." Part II. Edited by E. D. Hanscom. 198 pp. 1s. net. "Richard III." Edited by G. B. Churchill. 222 pp. 1s. net. (Macmillan.)

"Tales from the Midi." Translated and adapted by A. M. Bale. 32 pp. (Macmillan.) Limp cloth cover, 3d.

Classics.

Vergil's "The Taking of Troy." (Simplified Classics.) Edited by S. E. Winbolt. viii+86 pp. (Bell.) 1s. 6d.

Gaius Julius Cæsar, "Gallic War." Book I. By E. S. Shuckburgh. xxxii+152 pp.; illustrated. (Cambridge University Press.) 1s. 6d.

"A New Latin Grammar." By E. A. Sonnenschein. 266 pp. (Clarendon Press.) 2s. 6d.

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

"Homeri Opera—Tom. V.: Hymnus, &c." (Oxford Classical Texts.) Edited by T. W. Allen. 293 pp. (Clarendon Press.) Paper covers, 4s.; cloth, 4s. 6d.

Vergil, "Aeneid." Book VIII. Introduction, Text, Notes, and Lexicon. One of a new series of School Latin Classics designed for Junior and Middle Forms of schools. By J. F. Richards. 87 pp. (Clive.) 1s.

"First Lessons in Latin Grammar and Translation." By W. Greenstock. 340 pp. (Rivington.) 2s. 6d.

History.

Bell's English History Source Books (new volumes): "Puritanism and Liberty, 1603-1660." Edited by Kenneth Bell. viii+120 pp. 1s. net. "A Constitution in Making, 1660-1714." Edited by G. B. Perrett. viii+120 pp. 1s. net. (Bell.)

"English History Illustrated from Original Sources, 1066-1216." By N. L. Frazer. 234 pp. (Black.) 2s. 6d.

Chambers's Scottish National Histories. Book III. "British History from George I. to George V." 304 pp. (Chambers.) 1s. 6d.

"Modern Nations and their Famous Men." By H. B. Niver. 183 pp. (Harrap.) 1s.

"School Atlas of Ancient History." 16 pp., containing 33 maps and plans, with index. (W. and A. K. Johnston.) 2s.

"An Introductory Economic History of England." By Stanley Salmon. vii+130 pp. (Longmans.) 1s. 6d.

"England in the Middle Ages." Drawn and described by T. C. Barfield. (Selected from "Longmans' Historical Illustrations.") Containing 36 plates as follows: Eleventh Century (9 plates), Twelfth Century (5 plates), Thirteenth Century (5 plates), Fourteenth Century (10 plates), Fifteenth Century (7 plates). In portfolios. (Longmans.) 7s. 6d. net.

Geography.

"Maps: How they are Made; How to Read Them." By Prof. H. N. Dickson. 66 pp. (Bacon.) 6d.

"Railway Map of Ireland for Schools." (Bacon.) 6s.

"The World." By J. B. Reynolds. Containing 147 diagrams and maps. 360 pp. (Black.) 3s. 6d.

"Junior Geography, 1913." Specially adapted to the requirements of the Cambridge Junior Local Examination, 1913. By G. C. Fry. 232 pp. (Clive.) 2s.

"Senior Geography, 1913." Specially adapted to the requirements of the Cambridge Senior Local Ex-

amination, 1913. By G. C. Fry. 334 pp. (Clive.) 2s. 6d.

"A Junior Geography of the British Isles." By T. W. F. Parkinson. 176 pp. (Collins.) 1s. 6d.

Dent's Historical and Economic Geographies. Vol. I. "World Studies." By Dr. H. E. Piggott and R. J. Finch. 24+390 pp. (Dent.) 3s. 6d.

"An Introduction to Physical Geography." By Dr. Marion I. Newbiggin. xii+336 pp. (Dent.) 3s. 6d.

"A First Course in Physiography." By A. L. Arery, F. L. Bryant, W. W. Clendenin, and W. T. Morrey. 460 pp. (Harrap.) 4s. 6d.

"A Regional Study of the British Isles." ("Far and Near Series," Book IV.) By E. J. Turner. 256 pp. (Pitman.) 1s. 6d.

"The Atlantic Seaboard of North America." By Ellis W. Heaton. 77 pp. (Ralph, Holland.) 10d. net.

Mathematics.

"Public School Examination Papers in Mathematics." By P. A. Openshaw. viii+136 pp. (Bell.) 1s. 6d.

"A Preparatory Arithmetic." By C. Pendlebury. xiv+186 pp. (Bell.) 1s. 6d.

"Solutions of the Examples in Loney's 'Plane Trigonometry.'" By S. L. Loney. Part I., viii+224 pp. Part II., iv+146 pp. (Cambridge University Press.) 6s. each.

"Higher Algebra for Colleges and Secondary Schools." By Dr. Charles Davison. viii+320 pp. (Cambridge University Press.) 6s.

"Exercises from the Calculus for Beginners." By J. W. Mercer. viii+160 pp. (Cambridge University Press.) 3s.

"An Introduction to Algebraical Geometry." By A. Clement Jones. 548 pp. (Clarendon Press.) 12s.

"Calculations for Marine Engineers." Part I. of Griffin's "New Guide to the Board of Trade Examination for Marine Engineers." By R. A. McMillan. xx+336 pp. (Griffin.) 8s. 6d. net.

Science and Technology.

"An Introduction to Practical Physics." By Prof. E. H. Barton and Dr. T. P. Black. A complete Laboratory Course, with 120 experiments, for colleges and schools. (Edward Arnold.) 3s. 6d.

"A Course of Physics, Practical and Theoretical." By Dr. Charles H. Draper. 414 pp. (Blackie.) 4s. 6d.

"First Year's Course in Chemistry." By J. Sinclair and G. W. McAllister. vi+165 pp. (Bell.) 1s. 6d.

"Chemistry Papers (Civil Service Examination Papers)." Edited by A. P. Newton. 84 pp. (Bell.) 1s.

"Experimental Science." Part II. Chemistry. By S. E. Brown. viii+140 pp. (Cambridge University Press.) 2s.

"Junior Magnetism and Electricity." For Junior and Middle Forms of schools, and specially adapted to the requirements of the Cambridge Junior Local Examination. By Dr. R. H. Jude and Dr. J. Satterly. 296 pp. (Clive.) 2s. 6d.

"Modern Road Construction." By Francis Wood. xi+137 pp.; with 25 illustrations, coloured map, and a chart. (Griffin.) 4s. 6d. net.

"The Technology of Iron Enamelling and Tinning." By Julius Grünwald. viii+139 pp. (Griffin.) 6s. net.

"Notes on Foundry Practice." By J. J. Morgan. ix+108 pp. (Griffin.) 2s. 6d. net.

"Methods of Organic Analysis." Second edition. By H. C. Sherman. 426 pp. (Macmillan.) 10s. 6d. net.

Pedagogy.

"An Introduction to Psychology." By Prof. W. Wundt. xi+198 pp. (Allen.) 3s. 6d. net.

"Greek Education. Its Practice and Principles." By James Drever. viii+108 pp. (Cambridge University Press.) 2s. net.

"The American Secondary School and some of its Problems." By Julius Sachs. 316 pp. (Macmillan.) 5s. net.

"Ideal Two-term Syllabus and Report Book (Infants' Schools)." By J. E. Ellson. 36 pp. (Pitman.) 1s. 6d.

Miscellaneous.

"Basil Vereley (A Study of Charterhouse Life)." By Archibald K. Ingram. 320 pp. (Allen.) 3s. 6d.

"Suffolk Churches." In two volumes. By T. Hugh Bryant. 256 pp. (Allen.) 2s. 6d. net each vol.

"Child's Visions." By Daphne Allen (age 13). 78 pp. (Allen.) 6s. net.

"Memorials of Old Nottinghamshire." Edited by Rev. P. H. Ditchfield. 363 pp. (Allen.) 15s.

"Little Lessons about Animals." By M. A. Wigley. vi+136 pp. (Bell.) 2s. net.

"The Story of our Trees in Twenty-four Lessons." By Margaret M. Gregson. xii+160 pp. (Cambridge University Press.) 2s. 6d.

"University of Cambridge Higher Local Examination Papers, June, 1912." (Cambridge University Press.) 2s.

"Birds of the Field and Hedgerow." 64 pp. (Chambers.) Paper, 4d. net; cloth, 5d. net.

"Birds of the Air and Sea." 64 pp. (Chambers.) Paper, 4d. net; cloth, 5d. net.

"Boy Wanted. A Book of Cheerful Counsel." By Nixon Waterman and Fred E. Bumley. (Harrap.) 2s. 6d. net.

"An English Primary School." By A. K. Pritchard and F. Ashford. 128 pp. (Harrap.) 1s. 6d. net.

"An Animal Story Book." ("Pleasant Stories for the Little Ones" Series.) 31 pp. (McDougalls.) 3d.

"The Pupils' Book of Constructive Work." Set I. By Ed. J. S. Lay. (Macmillan.) Book I., 64 pp. Sewed, 4d.; cloth, 5d. Book II., 80 pp. Sewed, 5d.; cloth, 6d. Book III., 80 pp. Sewed, 5d.; cloth, 6d.

"Modern Book-keeping." By J. Wakeford. 236 pp. (Murby.) 1s. 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 Question of Sequence in Geometry.

IF it is not too late, I would like to direct attention to a point raised by Mr. Godfrey in the discussion of this question in your issue for May, which has just reached me.

As was pointed out in the Board of Education Circular ("On the Teaching of Geometry and Graphical Algebra," March, 1909), it is almost wholly with regard to the fundamental propositions dealing with the congruence of triangles, the theory of parallels, and the sum of the angles of a triangle (Euclid, Book I., 4, 8, 26, 27-29, 32) that there are serious differences of order, due to differences of method.

Mr. Godfrey, in his communication, directs Prof. Bryan's attention to this fact, and asserts that the way out of the difficulty is indicated very clearly by the Board of Education in the same Circular. As is well known, the Board recommends that these results should be obtained independently by intuition or experiment, and that the theory of parallels be presented from the point of view of rotation.

As Mr. Godfrey remarks, these propositions thus become essentially postulates. But many teachers will not see the reason for this, and will continue to regard their presentation of the facts as a "proof." Indeed, we are indebted to this Circular for the introduction into the schools of *the vicious direction-theory which has been adopted in so many modern text-books*. The words in italics I quote from "Heath's Euclid" (vol. i., p. 191), and there can be few mathematicians who do not regret the reappearance of such fallacious proofs. It would have been interesting to know Prof. Bryan's views on this matter.

There is another way out of the difficulty, a much safer and more satisfactory way, it seems to me. After the preliminary course of experimental work, when the deductive treatment is begun, let us adopt Euclid's treatment, or something equivalent to it, for these *fundamental propositions*. Nothing can be said against taking Euclid I. 4 as an axiom; in fact, it is the axiom of congruence. If this is done, it would be unnecessary to use the method of superposition. But so far as the theory of parallels is concerned, is there any real objection to adopting Euclid's sequence (I. 16, 27-29, 32)?

It is probably the case that the schools which have adopted the recommendations of the Board of Education have found that the sequence difficulty has vanished. They would also find this to be true if they were to follow Euclid's sequence in these *fundamental propositions*.

This method is now followed in most of the secondary schools of New South Wales and Queensland. I cannot speak for the other Australian States. Though we have been criticised for this return to Euclid, I am still of opinion that the boy of thirteen is able to appreciate these proofs, and that it is better to base his formal geometrical work on this foundation than on the very doubtful one Mr. Godfrey urges so strongly. To quote from the "Memorandum on the Teaching of Elementary Mathematics" issued by the Department of Public Instruction in N.S.W. :—

"It is now admitted, and it is most certainly true, that Euclid's treatment of the theory of parallels is one of the most striking features of the *Elements*, and forms one of his greatest triumphs. And it seems more than a pity to allow the schoolboy to be brought up on geometrical reasoning regarding parallels which, if it were true, would mean that Euclid's parallel postulate [Axiom 11] was unnecessary, and that his famous assumption was itself capable of proof."

Some measure of uniformity in the treatment of these propositions having been secured, during the remainder of the course complete freedom is given to the teacher. Provided he has obtained a suitable training, he should be able to make a wise use of his liberty.

H. S. CARSLAW.

The University, Sydney, June 10th.

WITH your permission, I make the following comments on Prof. Carslaw's letter of June 10th.

Prof. Carslaw is in favour of taking Euclid I. 4 as an axiom, and everyone who is conversant with the work of modern geometricians must agree with him. Does this eliminate the objectionable method of superposition? In Euclid I. 8 ("3 sides" congruence)

superposition may be avoided by the use of Philo's proof. Euclid proves I. 26 ("2 angles and 1 side" congruence) without superposition, using *reductio ad absurdum* for each case; but I suppose that this has been found too repulsive, and school editions of Euclid have drifted back into the superposition proof. I doubt, therefore, if Prof. Carslaw will in practice get rid of superposition by throwing Euclid I. 4 to the wolves; I have more faith in the Board of Education plan of taking all these congruence theorems as postulates.

Before leaving congruence, let me mention another advantage of the Board of Education proposal. It enables us to study the different congruence theorems together, as a group. Euclid's way of stringing out allied theorems at wide intervals (I. 4, 8, 26) is bad for teaching purposes, and sins against the aesthetics of mathematics. Why did he do this? Because he could not prove the second case of I. 26 without I. 16. The Board of Education plan, having *postulated* I. 32 (angle-sum for triangle) previously, can reduce I. 26 to one case. It may be objected that this makes I. 26 depend upon the parallel postulate; and the objection, though academic and not applicable, in my opinion, to elementary work, would hold as against a *logical sequence* that put I. 32 before I. 26. But the Board of Education plan gets rid of logical sequence among the fundamental theorems. The only question is: What fundamental theorems shall we agree to postulate?

Now for parallels. I hold no brief for "direction" as part of a formal treatment, nor does the Board of Education Circular, as I read it. But "direction" is a word in common use, and should be used correctly by schoolboys; the proper place for teaching this correct use is in connection with an informal discussion of parallels. The teacher's objection to Euclid's treatment of parallels is that it obscures the simple facts of parallelism by deducing them from a more complicated theorem about the exterior and interior angles of a triangle (I. 16). To make matters worse, Euclid's proof of I. 16 is not sound ("Heath's Euclid," vol. i., p. 280). The unsoundness of I. 16 is comparable with the unsoundness of "direction" proofs; a thing intolerable to real mathematicians, but imperceptible to schoolboys, and to most schoolmasters.

This endless controversy as to the best sequence in Book I. arises from the impossibility of compromising satisfactorily between the claims of pedagogy and mathematical rigour. The Board of Education Circular simply cuts the knot, by treating these fundamental theorems as postulates. Prof. Carslaw fears that many teachers will continue to regard the presentation of the facts as a "proof." Very likely; but are teachers who cannot distinguish between presentation and proof fit to teach the most difficult part of elementary geometry, namely, Euclid's early theorems?

Osborne, July 31st.

CHARLES GODFREY.

School Reports.

THE reports sent to parents of boys in our schools do not often enable them to form an accurate opinion of their children's work and progress. They read perhaps that Arthur is "very fair" in Latin, and occupies the 17th place in the class, while in chemistry he is 14th, and "satisfactory." These remarks convey very little, if any, meaning to the parents, as they do not know upon what system they are based. Also the master at times finds considerable difficulty in ringing the changes upon the few suitable adjectives available, as remarks such as "dull, would make a good parent," might not meet with the headmaster's approval. The form of report here described aims at indicating both the absolute and relative values of the work done. The heading of the report follows the

usual form, the pupil's name, age, form, number in form, and average age of form, being given. Under this there is a list of subjects, at the side of which are three columns, headed respectively, "Work of the Term," "Position in Term," and "Position in Examination."

It is possible to describe the work done by a boy during the term by using not more than five different remarks; these are indicated by Roman figures, and the following explanation of the system is printed on the report:—

"I.: Indicates a very high degree of excellence and shows special capacity. II.: Good. III.: Satisfactory. IV.: Weak. V.: Unsatisfactory. The classification is based on the student's ability in the particular subject and the progress made, age being taken into consideration."

This column indicates the absolute value of the work of the boy, while the two other columns giving the position in term and in examination show the relative value of the work done as compared with that done by others. Below this table is given the position of the student in the final order of the form.

In obtaining the final position of a boy in the form it is necessary that an important subject shall have a greater effect than a less important one, and that the different standards of marking adopted by different subject masters shall not affect the result. The former is secured by arranging that the marks allotted to each subject shall represent the relative value of that subject, and as a measure of this value the number of hours per week devoted to the subject may be taken. The latter is obtained by raising the marks obtained by the top boy to the maximum, and the others in the same proportion. It may be argued against this system that it gives the boys a wrong impression of the value of their work, but these marks should not be seen by the boys, as their only object is to enable the form master to obtain the relative position of the boy. If it is considered necessary for the class to see the marks the list should be made out before the marks of the top boy have been raised to the maximum.

The average report on a boy's conduct is often very misleading, the remark "conduct good" frequently meaning that the boy possesses the negative virtue of not bringing himself before the master's notice. This part of the report should indicate more than the mere behaviour of the boy, and for want of a better word, the term "community value" is used. This is reported upon under two headings: (a) conduct, (b) share in the corporate life of the school. Here, again, the remarks have been standardised, and in this case it has been found that three remarks cover all cases: A, specially commended; B, satisfactory; C disappointing.

At boarding-schools this part of the report could perhaps be best filled up by the house-master, but in day schools, even where the house system is adopted, the remarks are better decided upon at a general meeting of form-masters. The school captain's help in deciding upon the report on the boy's share in the corporate life is often most useful.

J. HART-SMITH.

Battersea Polytechnic Secondary School.

Greek Words in English.

THE Simplified Spelling Society may have failed to convince many of us of the desirability of accepting their proposals, but they can scarcely have failed to convince any thinking person that there is something wrong with our language; for they have shown us that the effect of spelling certain words as they are pronounced is to deprive them of all significance, and

this in itself is surely a fault in our language. The words which suffer most from being spelt phonetically are words derived from the Greek. For example, "cynosure" becomes "sienosyuer," "psychology" becomes "siecolojy," and so on. The reason of this is that the pronunciation of these words has strayed so far from that of the original Greek that the orthodox spelling is the only link by which they are connected with their root; if, then, we phonetise the spelling, this last link is severed and the significance of the word is destroyed.

I am well aware that the reformers hold that it is no part of the duty of a word to show its origin. This may be true of a certain class of words, namely, those which in form and meaning are essentially simple and primary. These, however, though the most important, are not the most numerous in the language. The majority of words are derivatives and express derivative ideas; the force and efficiency of such words depend upon their power to maintain connection with the root from which they are derived; when this connection is weakened the word is weakened; when it is completely severed the word dies. If, for instance, we had to spell "cynicism" as "sinisism," the word would cease to be used at all.

The corruption of such words is due to two chief causes, Roman influence and French influence, the former having corrupted the spelling, the latter the pronunciation, of these words. The antidote to the former is ready to hand. By restoring the Greek lettering we can neutralise the effect of Roman influence and restore the visible connection of these words with the Greek. This visible connection is far more important than the aural, because the words of a dead language are seen a hundred times by the eye for once they are heard by the ear. It happens, however, that by restoring the Greek lettering we can in many cases restore the Greek pronunciation. If we write "hudrokephalous" for "hydrocephalous," there is no possibility of its being pronounced "hiedro-scephalous."

Whether we accept this principle or not, one thing at least seems inexcusable, and that is, accept the Roman spelling for one half a word and not for the other. Thus in "criterion" we keep the Greek termination, but Romanise the "k" into a "c." This word should either be "criterium" or else "kriterion." In the same way "kaleidoscope" and "kinematoscope" are usually spelt as here, the second "k" being Romanised, the first not; this surely cannot be defended.

The tide of opinion is, I think, already beginning to turn in the direction I have indicated. In many modern works on Greek mythology, notably Lang's translations of Homer, the proper names are given in the Greek lettering. Moreover, several words which have only been recently taken into the language have been allowed to keep their Greek dress. The most striking example is the word "kudos." It is worthy of note that if this word had come into English through the Latin, it would have been spelt "cydus" and pronounced "siedus," and its connection with the Greek word would have been completely effaced.

G. M. WILLIS.

The Set-square Theodolite.

THE apparatus described is really a simple theodolite, limited to the angles of a set-square. It is sufficiently accurate to measure outdoor lengths and heights so as to compare favourably with direct measurements. This little device will be found to provide for several experiments in outdoor measurement, and as the construction is so simple, the prin-

ciples underlying any estimation of height or distance will be easily grasped. Teachers of practical subjects will also readily acknowledge the benefits accruing from any practical work which can be carried out in the open air during the summer term, especially if there be a repetition of the summer of 1911.

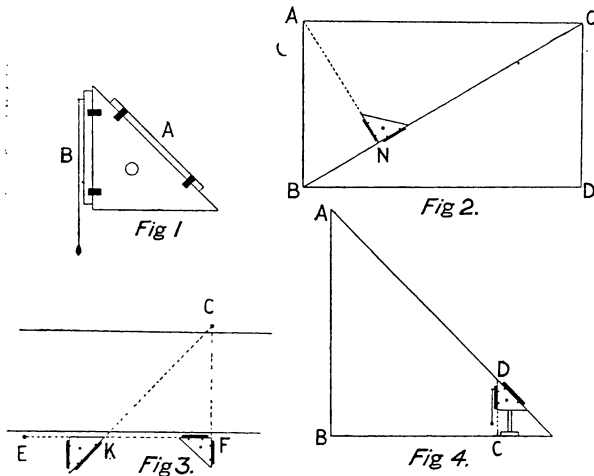
The apparatus consists of two small metal tubes A and B (Fig. 1) fitted with clamps, and can be clamped to either edge of a set-square. These tubes are fitted with cross-wires at the ends which enable an object to be sighted accurately. The set-square can be fitted firmly, either horizontally or vertically, to the top of a broomstick by means of a screw and a washer. The broomstick is nailed firmly to a flat piece of wood, which serves as a base.

The following experiments are typical of what can be done in the way of outdoor work with the apparatus:

Example I.—Assume the figure ABCD (Fig. 2) to be a rectangular playground. The area has already been determined by the class in the ordinary way.

It is required to prove that the area of a triangle is half the length of the base multiplied by its vertical height.

Place the set-square (45°) sighter, mounted hori-



zontally, at N, as shown in the diagram, so that the corners of the playground, A and C, are sighted simultaneously through the sighters. Measure the distances BC and AN, and hence calculate the area of the triangle ABC, which will, of course, be half that of the whole rectangle.

Example II.—To find the width of a river or road without actually measuring across it.

Suppose FC (Fig. 3) to be the width of the road. Place the mounted set-square opposite a lamp-post, C (a boy holding a broomstick will do), so that C is sighted, and at the same time another broomstick placed at E is sighted with the other sighter. Place a broomstick at F, and then move along the line EF with the set-square sighter until C and F are sighted simultaneously. Suppose this position to be K. Then the distance KF will be the same as CF—i.e., the width of the road or river.

Example III.—To measure the height of a lamp-post, telegraph pole, or building.

Suppose AB (Fig. 4) to be the height required. Fix the sighter on the broomstick in a vertical position. This is ensured by means of the plumb-line attached to the vertical sighter. Move backwards from B until, on looking through the sighter which has been clamped to the hypotenuse of the set-square,

A is just sighted. The height AB will be the distance BC + the height DC.

By using a 60° and 30° set-square as well, some interesting outdoor work can be carried out, and elementary trigonometry thus introduced in a simple, interesting, and practical manner.

The little apparatus serves as a useful introduction to my school theodolite, which instrument was described in Mr. B. C. Wallis's article "Apparatus for Use in Teaching Geography" (THE SCHOOL WORLD, August, 1911). E. T. BUCKNELL.

Kingsholme School, Weston-super-Mare.

The Apprehension of Form in Reading and Spelling.

ARE all mental capacities equally important, and are they all equally educable? This question at once crops up when we wish to decide which subjects should be included in the school curriculum, and how these subjects can most profitably be taught. The first step to be taken is, of course, to ascertain what mental capacities are involved in the study of each subject.

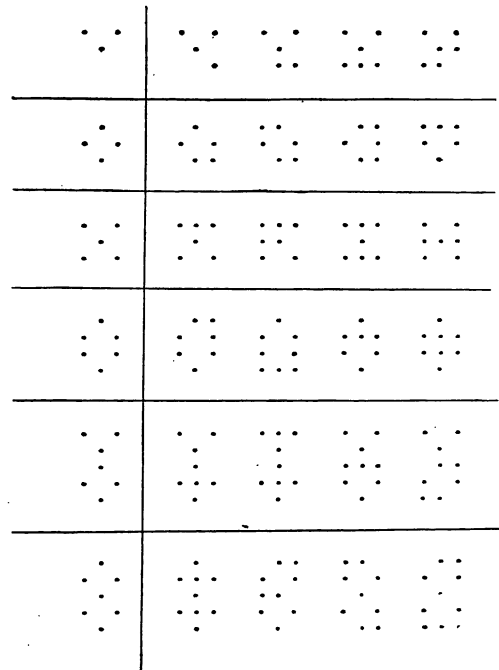


FIG. 1.

The present investigation is an attempt to analyse out one of the factors involved in reading and spelling.

The Subjects.—Two classes of boys from a superior type of elementary school were tested. Their average ages were: Class A, 10.8 years, and Class B, 10.6 years. Their ability in the school subjects was judged from their prowess at the terminal examinations. The ability to apprehend form was measured by the success of the boys at the "schema" test.

The "Schema" Test.—A specimen test paper is appended; it consists essentially of a group of dots (Fig. 1) which may be regarded as forming a schema or pattern (these patterns are ruled off to the left on the specimen paper), and several other groups of dots which contain the pattern, together with a few superfluous dots. The boys were instructed to cross off those dots which did not appear in the pattern at the beginning of that line. A definite time limit was set in which the task had to be accomplished. The test paper contains in all six patterns, each of which is followed by four irregular dot-groups. In order to

succeed at the test it is first necessary to be able to relate the group of dots into a pattern; this done, to read this same pattern into the other groups of dots on the same line. The superfluous dots act as a disturbing factor, so that unless the pattern is firmly fixed in the mind, the presentation of another group of dots obliterates the memory of the pattern.

To use Mr. Stout's phraseology, implicit apprehension of the pattern has to be followed by schematic apprehension of the other dot-groups. These terms seem so applicable to the description of the test that I can best close that description by a quotation from one of Mr. Stout's books¹ :—

"This circumstance suggests a name for that apprehension of a whole which takes place without discernment of its parts. We may call it *implicit* apprehension. In so far as the component parts become discernible, implicit apprehension becomes *explicit* . . . so far as the implicit idea or perception of a whole determines the successive emergence of its parts in consciousness we may apply to it the term *schematic apprehension*."

The Results.—These show that ability in the test is no sure sign of a corresponding ability in reading or spelling; in fact, those who are good at the test are almost equally divided among the good and bad readers, and the good and bad spellers. For the sake of comparison, ability in the test was compared with ability in arithmetic, with the result that there was manifest a very decided tendency for those good at the one to be equally good at the other, and for those bad at the one to be equally bad at the other. If we take 100 to express complete correspondence of one ability with another, then :—

Arithmetic corresponds with test, 50 per cent. approx.

Reading corresponds with test, 4 per cent. approx.

Spelling corresponds with test, 10 per cent. approx.

It will be seen from the above results how small a part the apprehension of form plays in reading and spelling. This fact can be borne out by many illustrations. For example, there are many adults who rarely make mistakes when they themselves are writing, but who begin to feel some doubt when presented with alternative forms, such as *reffered*, *referred*, and *refered*, instead of being made more certain by the "look" of the word. Thus, unless these results can be explained in some other way, they suggest that those methods of teaching, reading, and spelling which lay great emphasis on the *form* of the word, cannot be regarded as quite satisfactory. However, these results are advanced rather as a subject for consideration than as the solution of any problem in the teaching of the subjects concerned.

E. J. G. BRADFORD.

King's College, University of London.

Demonstration of Transverse Waves.

THE following apparatus is very easily and cheaply set up, and will serve to illustrate transverse waves very vividly.

Get a long thin rod or cord about 9 ft., and at intervals of two or three inches suspend glass beads by thread about 18 in. long. I have the rod in two 4-ft. lengths, in order to store it easily. Tie the beads themselves together by a piece of thread which is not quite taut between the beads.

If now one end is oscillated horizontally, a splendid example of a transverse wave travels down the beads, and with the length suggested about six complete waves can be seen at any instant. If the eye is concentrated on one bead it is seen that the motion is transverse to the direction of propagation

¹ "Analytic Psychology," vol. i., p. 96. *Implicit* and *Explicit* are in italics in the original, but the last clause is not.

—each bead is the bob of a pendulum oscillating with a very small amplitude, that is, each bead has practically simple harmonic motion.

This method has many advantages over those commonly supplied by science apparatus manufacturers. It costs only two or three pence; the boys themselves can set up the whole thing in some spare lesson; the energy necessary for transmission of the wave is applied *only* at the beginning of the wave, as obviously it should be; various amplitudes and wavelengths can be obtained, according to the energy given to the first bead; by keeping one end free, the change



of phase on reflexion can easily be seen, and also, if the end is fixed, then no change in phase is noted. If a free end is used, then it is advisable to put a thin ruler or such-like article to keep the last bead from doubling back on the others.

An examination of the photograph shows that the beads are moving faster at the nodes than at any other place, for there the representations of the beads are short straight lines, thus showing that during the exposure (one-fiftieth of a second) the beads had moved a short distance.

E. G. MILNER.

County School, Wolverton.

The School World.

A Monthly Magazine of Educational Work and Progress.

EDITORIAL AND PUBLISHING OFFICES,
ST. MARTIN'S STREET, LONDON, W.C.

Articles contributed to "The School World" are copyright and must not be reproduced without the permission of the Editors.

Contributions and General Correspondence should be sent to the Editors.

Business Letters and Advertisements should be addressed to the Publishers.

THE SCHOOL WORLD is published on the first of each month. The price of a single copy is 6d. Annual subscription, including postage, 7s. 6d.

The Editors will be glad to consider suitable articles, which, if not accepted, will be returned when the postage is prepaid.

All contributions must be accompanied by the name and address of the author, though not necessarily for publication.

The School World

A Monthly Magazine of Educational Work and Progress.

NO. 166.

OCTOBER, 1912.

SIXPENCE.

THE KINEMATOGRAPH IN SCHOOL.

By H. O. HALE, M.A.
Oundle School.

THE proposition that the kinematograph offers possibilities as an educational instrument requires little argument, and is well sustained by the use that has been made of this method at Oundle during the past year and a half. Physical science, geography, history, manufactures, natural history, and biology can all get some useful help from moving pictures, and much is to be expected from the future development of the method. New films on various subjects are being placed in circulation literally by many hundreds every month, and of these a valuable proportion are instructive. We may remember that some minds respond to books and diagrams, others require pictures and practical work. In some cases the light breaks in from a coloured picture when the plain picture has failed. In refractory cases let us try what moving pictures can accomplish in opening up the stubborn ground. This would not imply by any means that moving pictures are beneath the notice of able boys and girls. On the contrary, they may also be made the exponents of interesting research.

The full use of the kinematograph for scientific purposes will come, in fact, when films can readily be made at school. In the meantime, the makers are producing very useful films, and no doubt will be ready enough to meet a demand. Some of the simple physical and chemical experiments lend themselves to the kinematograph for reproduction before a large audience, and impress both the imagination and memory.

In many branches of science the kinematograph is useful in furnishing a means of adjustment of the time-factor. This is seen in some of the botanical films, where a process of growth of nine months is reduced to growth in fifteen minutes.

Conversely, phenomena which take place in a few seconds can be expanded by the kinematograph representation to several minutes. Examples can be suggested of falling bodies, vibrations, engine diagrams—a whole field in which to explore the educational value of moving pictures. Prof. Worthington's delightful photography of falling drops, or the curious and scarcely to be understood gyrations of a top, might come within the range of the kinematograph, and a flood of new light illuminate our scientific conceptions. A photograph is often more penetrating than the eye, as surgeons find in using the X rays. The kinematograph has the advantage of repeating as often as is necessary exactly the same movements. In this respect it corresponds to the gramophone in teaching pronunciation—the very monotony of sameness striking the memory, and setting up an invariable standard. It is not unlikely that the penetrating vision of the camera will reveal many phenomena of motion which otherwise escape observation.

It will be of interest to give some account of the use which may be made of films which are already part of the regular stock of the manufacturers.

Geographical films are now obtainable in considerable numbers. Foreign scenery, the indoor and outdoor life of distant peoples, the operations of mining, of lumbering, and of tropical agriculture, the moving life of a street in Cairo, Calcutta, Peking, or Montreal, the traffic on great waterways, the work on a cattle ranch or a fruit farm, tropical rain, ceremonial processions—all can be shown and all would be valuable. The very penguins of the Antarctic have been shown on the kinematograph by Sir Ernest Shackleton. It is necessary only for this work to be systematised for teaching purposes. If boys and girls who give a school-year to the study of the geography of a selected country could look forward to an exhaustive series of films showing

the country as it is, with its scenery, fauna and flora, the people, their industries, their amusements, even their religion, they would gather and retain a mental picture that would go far to clothe the dry bones of the subject in its physiographical aspect. Isothermals, rainy seasons, watersheds, ocean currents, are priceless, no doubt, but a subject loses nothing by an infusion of human interest. Let it be our aim so to teach geography that our pupils if dropped down in the country they have studied would recognise it at once.

Some help could be obtained in teaching history also—at any rate, to younger children. Representations of the more scholarly pageants would be most valuable. The opening of the Queen Victoria Memorial, the Coronation procession, and the Delhi Durbar as seen by means of the kinematograph are perhaps little more than processions of soldiers, an opportunity for cheering the Highland regiments or the Naval Brigade, but even these might be made the peg on which to hang some useful information.

Interesting and instructive films exhibiting the various operations in manufacturing processes can be shown—and no doubt facilities would be given greatly to extend this application of moving pictures.

The bioscopic method may be well exemplified at the present time in the teaching of biology. Its value in natural history cannot be overestimated, and for this subject many excellent films are in existence.

No one who has seen a film showing the infection of a small animal with the trypanosome of sleeping sickness, the onset and characteristic progress of the disease, and the corresponding change in the blood, which is normal at first, and afterwards swarming with trypanosomes, can fail to carry away a vivid picture and a clear understanding of the operation of this troublesome scourge. The demonstration is somewhat idealised. The trypanosomes in a specimen of blood taken from an infected animal, even when death is approaching, if seen under the microscope are not always so numerous or so active as the film represents. If, however, the condition depicted is somewhat more acute than the average, the information conveyed is both clear and illuminating. The prevalence of sleeping sickness is a matter of great public importance. The disease is affecting the history of large areas of the African continent. For this reason alone the attention of schoolboys, and, indeed, schoolgirls also, may be directed to it with advantage of more kinds than one. Preserved specimens of the tsetse fly are not difficult to obtain. Professors and demonstrators who are at work upon tropical

diseases are generous in lending slides showing the haunts of the fly, and the results of their work are found in a number of scientific journals. The story of how the cause and method of transmission of the disease were discovered, of the life-history of the fly, and of the measures now being taken in the hope of curing and especially of preventing the disease, is of surpassing interest, and forms by itself the material of a valuable lecture. The kinematograph film adds a vividness and reality that can be obtained by ordinary persons in no other way.

Kindred films show the circulation of the blood, the amoeboid movements of a leucocyte, phagocytosis, the invasion of the red corpuscles of the blood by the spirochaetes of relapsing fever, and the method of operation of the cholera bacillus.

The objection may be offered that these are matters for the medical officers of distant colonies or for the pathological laboratories of hospitals. The answer is that the educational value of anything that is real is infinitely greater than of anything that is trivial or artificial, whatever efforts of memory or other mental gymnastics the latter may require. The realities that can be brought within the comprehension of boys and girls at school are not so numerous that we can afford to forego a single one.

In the world of education we change our gods as the years go by, and no doubt rightly. Kindergarten, plasticine, the oral teaching of Latin, gramophone records in French, contemporary colour in the teaching of history—above all, the great god Nature Study—we have bowed down to them all, and some we reverence still. Is it too much to say that we have no better ideal at present than education by the thinking out of things that are real, and of some human importance? The boy who understands why the French engineers failed in making the Panama Canal and why the Americans are succeeding (the kinematograph will show him the whole life history of the mosquito) has stepped further than the boy who is passionately fond of wild flowers and can recognise the chaffinch by its note. In like manner the boy who can thread his way through the arithmetic of a drilling machine (called mechanics for mystification) and who can arrive, a step at a time, at the real lesson of an experiment in growing sugar beet, finds at least as much exercise in consecutive thought as the boy who never trips in calculating the interest on shillings and pence for two years and eight months at four and three-quarters per cent., or in unravelling the impossible journeys of A, B and C.

The biological scope of the kinematograph

is not confined to pathological subjects. The germination of a seed and the early growth of the root and shoot can be displayed in a most graphic manner. It is positively eerie to watch the root ramifying and forcing its way through interstices with all the appearance of a sentient organism, searching the soil for the substances that will satisfy its needs. At the same time the shoot is rising into the air, turning this way and that, as if it knew perfectly well what its requirements are, and how they can be met most effectively. The opening of the bud, the movements of the leaf during growth, and the response of the flowers to sunlight and the approach of darkness can be observed stage by stage until the colours fade and the flower withers and falls. We have here a good example of the advantageous adjustment of the time factor. These operations take place so slowly in nature that they cannot be followed by the human eye. The kinematograph reveals them all.

The life history of the frog is well known in broad outline to many boys and girls. By means of the kinematograph the development of this animal can be followed in detail from the fertilised egg to full growth. The black spot in the centre of the egg is seen to grow and change its shape. Movement begins and becomes more vigorous and more varied until the tadpole breaks out of the egg and swims about, breathing at first by gills only, and returning from time to time to feed upon the discarded capsule. After a while the tadpole, responding to the growth of lungs, learns to come to the surface of the water for air. Later on the limbs appear and the animal is seen learning to use them. The tail disappears and the young frog climbs on shore and betakes itself to fly-catching, as if it had never known any other variety of food. These stages can be traced in nature by those who have time for the purpose, but the condensation of so many observations within a period of ten or fifteen minutes is valuable even to those who have made a practical study of the animal. It will be remembered that the films are a succession of photographs taken from life.

Some very successful pictures of minute organisms may be mentioned at this point. Cyclops can be seen hatching out its eggs, throwing off its young from sacs on each side of the tail. *Daphnia* photographed under the microscope shows the relation of the internal organs, the beating of the heart and the movements of the digestive canal. Other interesting subjects of this character are hydra, *Volvox globator*, and among larger organisms the sea anemone, medusa, the octopus, the sea urchin and the brittle-star.

The successive stages in the life history of an insect offer a most interesting example of this method of instruction. The caterpillar is displayed feeding voraciously. After a while it selects a convenient spot and builds its house of retirement, bringing materials for the purpose from a distance, with careful attention to the principles of protective colouring. The chrysalis is formed within and remains hidden in the nest. Later on an aperture appears, which increases in size until the moth breaks out with a marvellously rapid movement. In other cases the caterpillar sloughs its skin and the chrysalis is seen, twitching slowly at first, and afterwards with increasing vigour. Then begins a veritable agony of effort until the butterfly emerges, a crumpled and sorry spectacle, but soon the limbs are stretched, the wings unfold, and the full-grown insect flies off to the nearest flower.

A trustworthy kinematograph machine with all desirable adjuncts costs about £60, and requires a potential of 100 volts with a density of 70 ampères or a little less. Films can be hired at prices varying between five shillings and £2 per 1,000 feet. A combination of four or five films will make between two and three thousand feet, and can be run through in about three-quarters of an hour. Adequate explanations of the subject form part of the films, but a better method is to show one film at a time. Let it be run through at once, and then let a fuller explanation be given by the lecturer, perhaps with the aid of some still slides. (It is well to have an ordinary lantern side by side with the kinematograph.) While this is being done the film can be wound up to be shown a second time—perhaps even a third time—in order to drive home and clinch the impressions obtained. The demonstration may be made the subject of questions or an essay later.

Every large school would desire and should have a machine of its own, but in smaller schools the expense may be prohibitive. It is also advisable to have an outfit for the manufacture of films. There is no reason, however, why a group of smaller schools should not be joint owners of a machine. The organisation required for the free utilisation of the machine should present little difficulty. In all but the smaller towns arrangements could be made for periodic afternoon demonstrations at some conveniently situated electric theatre. A small admission fee would meet the expense, and a number of schools would be glad to be present. Often the help of the local education authority would be available in making the necessary arrangements. Where such an authority is small in numbers and governs a restricted area, let several join their forces. Let there be a

machine under the control of the education officer of every county council, and let it be part of his duty to see that the machine earns its living. It should scarcely be impossible, if necessary, for two or three neighbouring counties to amalgamate for this excellent purpose.

EDUCATION AT THE BRITISH ASSOCIATION.

By H. BOMPAS SMITH, M.A.
King Edward VII. School, Lytham.

THE Education Section is no longer the youngest daughter of the British Association. This year for the first time there was a Section M, devoted to Agricultural Science, and in each addition to the number of the sections we have an outward sign that a new department of our national life is emerging from the stage of empiricism and tradition, and is gradually becoming organised upon a scientific basis.

But though education has thus gained a step in seniority, much remains to be done before its scientific organisation is complete. There is still much distrust of theory, which really means reasoned convictions as opposed to traditional beliefs, both among those engaged in teaching and among those who talk about it. Yet it is of special importance at the present moment, when the new Register is about to give us a great opportunity for organising our profession, that we should fully recognise the scientific character of our work. The advance of all professions has been marked by the parallel development of their corporate organisation and of the scientific principles which underlie and guide their work. We have seen this, for instance, in the case of the law, of medicine, and of engineering, and the progress of the teaching profession depends in no small degree upon the evolution of an accepted science of education.

Moreover, it is not true, as is sometimes asserted, that when theory becomes more scientific it becomes also more remote from practical life. It is the vague generalisations based on inadequate experience or the unreasoning precepts of tradition that fail us when we are face to face with difficulties in practice. As theory grows in scientific precision, it gains a closer hold on facts and grows more efficient as a guide to action.

This urgent need for the development of educational science gives a new importance to the meetings of the British Association, in which the scientific point of view is, or ought to be, supreme. As a matter of fact, the meetings of the Education Section tend each year to become more scientific in character, and

therefore more practically useful. There is still a certain percentage of speakers at these meetings who are interested mainly in the workings of their own inner consciousness; but this year the percentage was satisfactorily small. The large majority of speakers had real contributions to make to the discussion, and one felt when listening to the debates that we were being brought into touch with actual problems of importance and with some of the main currents of educational thought and effort. I was interested to see that the attendance at the more technical meetings showed no falling off, and that the audience was clearly desirous of understanding the more strictly scientific aspects of the subject.

The keynote of the meetings was struck in the address given by Prof. Adams as President of the Section. This address was a reasoned defence of the position that there is a true science of education, even if the foundations of this science are only being laid. Prof. Adams contended that there already exists a considerable body of organised knowledge which is the common property of educators, and that this knowledge is being constantly increased, largely by the method of experiment. He argued further that it is possible to establish an objective standard of truth by which to test the claims of any educational theory. This objective standard is being gradually evolved by the comparison of the results of a large number of observations and experiments. Thus M. Binet and his collaborators are by degrees formulating a series of tests by which we may hope to measure a child's general intelligence, while Mr. Winch and many others are subjecting the results of certain methods of teaching to scientific examination. Prof. Karl Pearson and his co-workers have elaborated a set of mathematical formulæ by means of which the results obtained by these and similar investigations can be correlated, so that we may look forward to determining, for example, the precise value of any given type of formal training. Prof. Adams was, perhaps, more sparing than usual in his flashes of illuminating humour, but some of his incidental dicta were in his happiest vein. He told us, among other things, that psychology had been captured by education, but that education must develop a standard and methods of its own and not borrow those of any other science.

The President's address was followed by the consideration of the report from the Eyesight Committee. Most of the serious work of the British Association is done by the committees appointed by the sections to pursue some special line of investigation. These committees are approved by the General Com-

mittee of the Association, which if necessary makes them a grant of money, and are composed of members who have made a special study of the particular subject of inquiry. The amount of research done by these committees is in the aggregate considerable.

The Eyesight Committee had been appointed to inquire into the influence of school books upon eyesight, and its report is a document which aroused much interest at the meeting, and is likely to produce practical results. The report directs attention to the prevalence of defective eyesight among children of school age: twenty per cent. of the children in elementary schools are said to suffer from some defect of vision. No figures were given for secondary schools, presumably because no statistics are available, but I should suppose that the percentage is at least as high. This widespread defect in eyesight is due partly to the small and unsuitable type in which many school books are printed, and the committee, with the assistance of experts, including doctors, printers and compositors, drew up a detailed table which, with the directions given, will enable the authorities who select the books used in schools to reject those likely to be detrimental to the sight. It is hoped that if some of the larger education authorities and schools make it a practice to adopt only such books as are printed in accordance with the recommendations of the report, it will soon pay publishers to use the right kind of type and paper.

At subsequent meetings several other reports were read from committees appointed or continued at last year's meetings. Of these reports the two of most general interest were those dealing respectively with the teaching of reading and writing and with the overlapping between secondary education and that given by universities and similar institutions. The former committee attempted to formulate the results so far obtained by the investigation of the psychological processes involved in reading and writing, and to deduce from these results the best methods of teaching these subjects. It was clear both from the report and from the subsequent discussion that further observation and experiment are needed before we can arrive at really scientific teaching methods, but it was the opinion both of the authors of the reports and of subsequent speakers that in teaching reading to beginners the so-called "look and say" method should be generally adopted, even though it may be well to supplement it by other methods. In other words, children should not be made to spell the words they are to read, but should be led to recognise them as wholes. For instance, a beginning may be made, not by drilling the

class in reading a-t at, c-a-t cat, and so forth, but by writing the children's names upon the board and letting them see which of the names they recognise. While excellent results have been obtained by this method, I think most teachers will agree with Dr. Myers when he argued that its exclusive employment leads to haphazard guessing and that a certain amount of analysing words into their component syllables is also needful.

The discussion on writing was to many of us one of special interest. Speaking for myself, I have found it difficult to get competent guidance in any efforts to improve the writing of the school. How far ought we to insist upon a definite mode of holding the pen? Should the chief movements made in writing be those of the fingers, or should we encourage movement of the whole forearm? These and similar questions inevitably confront us when we try to work out some system of teaching writing, and the answers given by various experts appear to be wholly empirical and certainly contradict each other. It cannot, indeed, be said that a final answer was given to these questions at the meeting, but a good deal of light was thrown upon them. In particular the suggestion was made, based upon some American experiments, that the forearm movement should be used for the upward and downward strokes and the finger movement for the rounded parts of letters, while Dr. Rusk urged that it is wrong to insist upon the hand being turned over so as to lay flat on the palm, and that the bottom of the paper should make a considerable angle with the edge of the desk.

The Committee on Overlapping held that there is no great harm in schools and universities doing the same kind of work to a limited extent. It made, however, certain recommendations of considerable value, holding that students should not be allowed to begin a degree course at the university until the age of seventeen, and that universities should not themselves prepare students for matriculation. It also supported the Consultative Committee's report on examinations and secondary schools by recommending that there should be two school-leaving examinations, one for pupils of about sixteen, and the other for pupils of eighteen or nineteen years of age. There is, I believe, a growing consensus of opinion that some such system of school-leaving examinations is badly needed, both in order to put an end to the present chaotic crowd of professional and other entrance examinations with their separate and often conflicting requirements, and as a means of fixing something like a definite standard of attainment which boys and girls at secondary schools may be expected to have reached. The great advantage of some

definite system of leaving-certificates was brought out in a subsequent discussion, when a description of the Scottish leaving-certificates was given, which to some extent answer the purposes just mentioned.

Of the other discussions I can speak only of two. On the Friday morning the question of Vocational Education was down for consideration, and produced two excellent papers and a noteworthy contribution from Prof. Moore, of Yale, known throughout America for his victorious fight for purity of educational administration. The question at issue was whether schools should confine themselves to giving a general preparation for life, or whether they should also directly fit their scholars for following definite occupations by teaching them what would be of practical use to them in their future calling, not for the sake of general culture, but in order to initiate them into the atmosphere and practice of that particular occupation. The feeling of the meeting on the whole was strongly in favour of the latter alternative, which was recommended from various points of view. It was urged, for instance, that specific training gives a new interest to the work of boys and girls in the higher forms of secondary schools; that the excessive subdivision of the processes of production in modern industry makes it almost impossible for the manual worker to take the same artistic interest in his work as was taken by his predecessors one hundred years ago, and hence that there is an urgent need for the schools to do something to prevent him from becoming a mere animated machine; or again that the so-called liberal education given by most secondary schools is in reality a vocational education, but vocational education of a type that is needed only by the few. What appeared to me to be particularly instructive in the debate was the evident desire of the great majority of speakers to bring education into touch with the needs and realities of daily life, instead of keeping it apart unspotted by the world.

Similarly, in the discussion on the present position of mathematical teaching the prevailing feeling was that mathematics should be taught as an instrument by which results of practical interest can be achieved rather than as a batch of abstract truths. The systematic application of this point of view would result in extensive changes both in the subject-matter and in the methods of our mathematical lessons. Thus, as Dr. Nunn explained, trigonometry would no longer be regarded as a separate subject, but would be incorporated in algebra. All boys and girls would study the sine or the tangent as a means of appreciating the quantitative side of certain matters

of wide human interest. Or again, as was urged by Dr. Pinkerton, visual observation and experimental inquiry would always precede formal analysis or demonstration. Here again we have the same demand for the closest possible connection between school teaching and the world of daily life.

There were several other discussions of more or less interest which I only mention. The desire to help the unfortunate which is characteristic of our time found expression in Prof. Hartog's plea for the university student of narrow means for whose interests the present provision of scholarships is quite inadequate, and in the reports of two committees, the one on Tests for Feeble-mindedness in Children, and the other on the Curricula and Educational Organisation of Industrial and Poor Law Schools. The latter brought out the urgent need for the inspection and regulation of industrial schools. "There is one small school where the whole number of thirty-two boys are engaged in wood-chopping."

It is, I think, a pity that so few teachers, and in particular so few masters, in secondary schools attend the Educational Section of the British Association. It may be true that at one time this section was scarcely in touch with the main currents of educational thought and had little interest for the average schoolmaster, but those days are past, and I believe that not a few masters and mistresses would make an effort to be present at the meetings if they realised the opportunities afforded for obtaining a wider outlook and for the interchange of experience. Our sectional societies flourish, but it is good now and again to meet serious workers whose briar-patches are different from our own, though they are part of the same field. Moreover, what is wanted more than anything else to make the meetings a success is the active participation of men and women who can speak from personal experience. If it is properly supported the Educational Section of the British Association will take a worthy share in building up a science of education which will really help us in our work.

Amateur Joinery in the Home. By Dr. George A. Audsley and Berthold Audsley. 105 pp., illustrated, and 22 plates. (Allen.) 4s. 6d. net.—For a boy whose tastes lie in the direction of handicraft this book will possess considerable attraction. The authors have provided a series of designs, drawn to scale, with detailed drawings of joints and other structural parts, of various articles of use and beauty. Although it may be said that much of the beauty is of a distinctly ecclesiastical character, there is still sufficient variety to enable the amateur joiner to make a selection according to his taste and ability. The book would make a suitable prize for wood-work.

AN OBJECTIVE STANDARD IN EDUCATION.¹

BY PROF. JOHN ADAMS, M.A., B.Sc., LL.D.

AT the present moment it is becoming increasingly evident that educational theory is consolidating: it can now be claimed that there exists a great body of educational doctrine that is of general acceptance. It need scarcely be said that there are many and deep differences among the various schools of educational writers. But if we compare any two schools we shall find that the points of agreement far outnumber the points of difference. This was true even in the older times of naïve theory, but is making itself very evident in these latter days. Anyone who has occasion to read all the books on the theory of education as they appear is impressed in spite of himself by the large body of doctrine that is common to them all. It is not that the books lack originality: each writer has his new point of view or his new interpretation of certain phenomena; yet each either baldly states or tacitly takes for granted a great body of truth that is held to be generally accepted. This body of recognised truth is gradually increasing as the result of collective thinking and the corrections involved in active criticism. Already critics are beginning to find fault with any writer who produces a book—not avowedly a text-book—that professes to deal with the whole range of education. He is reminded that what is now wanted is a special development along certain definite lines. The general principles of education are held to be established and accepted.

No claim is here made that education has yet justified her demand to be recognised as a fully developed science; but it may be fairly maintained that she has at least entered upon the stage of scientific method: she is seeking to free herself from mere empiricism. In such a struggle there are at least two possible lines of action.

The first requires some ingenuity, but is natural and pleasant. It consists in superimposing principles upon the facts of the case. The educational theorist invents or assumes certain broad general principles, then proceeds to fit in all the observed facts, and often shows great skill in the process.

The other method by which a study may seek to escape from mere empiricism is by dealing with observed results so as to reach the underlying principles. In this method, instead of setting up principles and making the facts square with them, we examine the

phenomena and seek to discover the underlying principles. Obviously this at once introduces the experimental method, since no satisfactory progress can be made by mere passive observation. This is the stage we have now reached in educational theory. We are passing from an appeal to experience to an appeal to experiment. Now the method of experiment is really a system of tentative prophecy, under rigidly determined conditions. We acquire skill in prophesying by a process of trial and error. We become prophets by prophesying. From all the knowledge at our disposal we calculate that a certain process will give a certain result. We apply the process, and then if the result is not what we expected we examine all the conditions, seek out the cause of our error, and proceed to another tentative prophecy. By and by we acquire the power of prophesying with confidence within certain recognised limits, and within those limits we may claim to proceed scientifically.

But in the evaluating of results that is necessary in this process of training in prophecy there is need for some recognised standard. Unless this condition be fulfilled there can be no general agreement among investigators. Accordingly the first step in raising a study to the scientific level is the establishment of such a standard. In the study of education in the past—and it must be admitted that the same is true to a large extent at the present—the standard adopted was in most cases a subjective one. There is a tendency to have everything determined by individual opinion. Certain educational processes are gone through; certain results follow in the lives of the educands. The causal relations involved are arranged by the individual observer to suit his own views. According to some the battle of Waterloo was won on the playing-fields of Eton; according to others the battle of Colenso was lost there. We have need of some standard that is independent of private opinion.

Astronomy is an exact science, and yet the problem of the "personal equation" shows that even here the subjective must be taken into account. The "personal equation" is, in fact, nothing but the elimination by quantitative methods of the disturbing subjective elements. It is by similar methods that we must seek to establish an objective standard in education. The difficulty in this subject is very great. Astronomy and physics touch the subjective only at what may be called the point of application, the point at which they are brought into contact with human life. Their subject-matter is external, and lends itself to objective treatment. In education the

¹ From the presidential address to the Educational Science Section of the British Association at Dunleek, September, 1912.

subject-matter is human nature, which is so complex and involves such volatile elements that it is almost impossible to reduce its working to fixed laws. The same difficulty obviously applies in psychology.

Just as psychology utilises physiology in its effort to gain a standing as a science, so education is inclined to use psychology. Frequently we hear psychology described as a science, while education is relegated to a place among the arts. It is natural, therefore, for the educator who wishes to claim rank in science to appropriate the scientific status of his auxiliary science. As a matter of fact education has captured psychology. This is only one of many cases in which a profession has taken possession of an abstract study, and in this way enabled the abstract study to make real progress. Theology as a study has gained greatly by the fact that it is a compulsory subject for those who are preparing for a great profession. Astronomy owes a great deal to the support it has received from its practical value to navigators. Physiology would not be what it is to-day had it not become an essential subject in the preparation for the practice of medicine. Physiologists sometimes complain that their subject is hampered by its professors having to waste time in teaching mere medical students; it is well to remember, however, that but for the demands of the medical profession, physiology would have been left to the few private investigators who might be able at their own cost to carry on under adverse conditions the work that is now being done in thousands of well-equipped laboratories. In the same way it is greatly to the advantage of psychology that it has become an essential part of the professional training of teachers. The subject is now receiving an amount of attention that it would never have had but for the support of its connection with the profession of teaching. But after all a teacher is not a mere psychologist: education is more than applied psychology. If education is to rank as a science it cannot be in virtue of its use of another study that itself has an insecure foothold among the sciences. It must establish for itself an objective standard.

Mere quantitative manipulation of the elements of a study, if only carried out on a sufficiently large scale, has a tendency to evolve an objective standard, apart from any deliberate search for such a standard. We may gather something from an examination of a standard of this kind that, unexpected and unsought, evolved itself in the ordinary course of educational administration. What Binet and his colleagues and followers have been trying to do of set purpose was, to some extent

at least, accomplished automatically by the working of the system of individual examinations under the English and Scotch codes of elementary education. Binet has drawn up certain tables with the express purpose of testing the intelligence of children at various ages. But we are only at the threshold of investigation work of this kind, and the tests cannot be regarded as satisfactory, either in themselves or in their application. But they have been drawn up with the deliberate purpose of supplying a more or less objective standard of intelligence. Now in the British elementary school codes we have the examination requirements from the pupils of different ages set out in a series of tables each corresponding to one of the seven grades known technically as "standards." The purpose of these tables of requirements was not primarily to determine the intelligence of the pupils, but rather to indicate certain minimum amounts of information that had to be communicated in consideration of a certain money payment. Yet these tables bear a generic resemblance to those of Binet, and in actual practice the "standards" did win acceptance as a test of intelligence. The requirements were perhaps less scientifically determined than are those of Binet's tests, but their practical value was very much greater, because of the extremely wide range of their application.

Nothing better illustrates the groping of education after a scientific basis than the present demand for some means of determining which children are "defective" and which merely dull. So imperative is the need for an objective standard here that it must be satisfied at any price, with the result that the decision is being more and more left to the doctors instead of to the teachers. The cause is not difficult to find. Physiology has already an objective standard, and the doctors are evidently expected to get their results by physical examination. No other explanation is admissible, since they are not only not superior to teachers in their knowledge of the mental reactions of the child, but obviously inferior.

We may learn something from what we have found out about the results of the individual examination system. The general tendency of quantitative methods is to eliminate the subjective element. Even in the case of marking examination papers, experience shows that the use of numerical marks tends to objectify results, and to get rid of some at least of the difficulty involved in the personal equation of the examiners. Marking by general impression of a whole paper is much less free from subjective variation. Every individual number set down as a mark implies

a fresh exercise of the critical power, and when there are many questions there is a compensating principle at work, inasmuch as each impression is recorded as it is made and the addition of the marks produces a balancing in which the latest impression has not the determining influence it too frequently has when a paper is marked as a whole. If an examination includes many subjects, many examiners, and a great body of examinees, the subjective element in the marking is, to a large extent, eliminated, and we can deal with the results in accordance with what is practically an objective standard. We must not, of course, neglect the fact that after all the whole basis of the results is the judgment of the individual examiner on the material submitted to him. This corresponds to the application to real life of any of the physical sciences. Here, as in many of the other sciences, we have a surd of subjectivity that can never be got rid of entirely. But its disturbing influence can be minimised by the counteracting influences of other forces in the quantitative manipulation of the data.

The hope of the evolution of education as a science lies in the proper manipulation of the method of experiment. Students of education have always been in the habit of asking questions, but they have not always waited for an answer. Nor have they usually taken sufficient care in making their questions precise. They have not laid down with the necessary detail the conditions implied in the question, and when they have reached some answer they have been too often content either to accept it without any verification at all, or with the support of nothing but a few general considerations that seemed to confirm it. In the newer educational investigations questions are set out in great detail. They are usually limited to one point, and all the relevant conditions are carefully laid down. Various control tests are applied during the progress of the investigation, and every precaution taken against the introduction of interfering forces. Then when a result has been obtained various confirmatory tests are applied. Even when all has gone well so far the result is not regarded as authoritative until the experiment has been repeated with the same results by different experimenters working under different general conditions, though, of course, all the detailed conditions must be precisely the same as in the original experiment.

The questions asked are often of a very practical character. In the current number of *Child-Study* Mr. W. H. Winch gives an example. The question is whether one gets better results in working "problems" in arithmetic by (a) direct teaching for a certain period

in how to work such problems; or (b) spending the same period in giving the pupils practice in working such problems. Mr. Winch gives a very instructive account of all the conditions under which his experiment was carried out, including all the necessary precautions. The result is that those who had had the teaching scored an average of 11.1 in the final test, while those who had had the practice scored only 9.2: the group that was taught improving on its preliminary record to the extent of 34 per cent., while the group that had been confined to practice improved by only 11 per cent. It is thus demonstrated, at present, that teaching counts for more than practice in the preparation of pupils to do problems in arithmetic. But the fact cannot be regarded as a part of the permanent possessions of the teacher until it is verified by many more experiments in this country and abroad.

We have seen that even at our present stage of advancement there is quite a respectable collection of recognised facts in connection with teaching and education, and that these are in process of organisation. We shall soon have such a volume of well-arranged knowledge as shall meet the first requirement for recognition as a science. But while organisation is imperatively needed and must go on, there is an equally urgent need for new knowledge. There are hundreds of definite practical questions that are being asked by teachers every day, and unfortunately answered according to individual experience, if not indeed according to individual caprice. Some few questions about the memory are now definitely answered, and practical educators have the benefit of the results of experiments; but there are scores of points with regard to memory on which there is still doubt, and yet these are points on which the practical educator must adopt a definite line in his daily work. He cannot postpone his decision: he must do one thing or another, and in the meantime he has no standard. There could be no more useful subject of inquiry suggested than an investigation into the questions that are most urgently demanding answers at this time among the practical educators of the country. To discover and classify these, and then to correlate them with the various investigations that are being made throughout the world, would be to render a very practical service to the study of education. The truths thus acquired and recorded could be fitted in to the mass already at our disposal, and the result would be a great strengthening of that objective standard that is so essential to the independent progress of our study.

Education ranks with a group of studies that deal with humanity in its various aspects. Psychology naturally is the science that underlies them all, since it is the abstract study of human nature which is their raw material. But politics, economics, sociology, eugenics, all claim to be sciences, and if we probe into their standards we find that they are largely statistical. It is quite possible by careful investigation among the subject-matter of these sciences to organise a system of general principles based upon averages obtained from a very wide field of investigation. These principles are of very general application, though they may not enable us to prophesy in individual cases. This, indeed, is at the root of a great deal of the criticism levelled at the claims of education to rank as a science. A parent or an education authority presents a boy to an educator and calls for a prophecy. The educator must decline, since he cannot honestly prophesy in an individual case, though he may be prepared to venture on a reasoned statement of what is likely to occur in the boy's educational career. The educator is, in fact, in precisely the same position as a medical man called in to a case. He can prophesy, but only in general terms. In both cases it is the application of general principles to a particular case.

This raises the whole question of the value of the average in matters of education. Psychologists in addressing teachers are beginning to warn them that the average is only an abstraction, and really does not exist. We are told that what the teacher has to concern himself with is "the living child here and now before him," and he is accordingly warned against the insubstantiality of the elusive abstract. But this is to confound two distinct things. It is true that the teacher must always deal with a living pupil here and now before him. But in his dealing with that living pupil he has to apply a paid-up capital of knowledge of men and of boys in general. He must seek to understand the living boy by the aid of knowledge previously acquired, and this knowledge is represented by the average. The master may be unable to prophesy with certainty how Jones minor will act under certain specified conditions. But from a knowledge of third form boys in general he can make a guess that is very likely to hit the mark. The teacher who applies his knowledge of the average third form boy to the minor Jones, without modification to suit Jones's case, acts unintelligently, but the possibility of blunders by a dull master does not reduce the value of the knowledge of the average in the hands of one who is capable.

The concept of the average boy as it is developed by experience and study in the mind of the master forms a standard by which other boys may be estimated. This standard is partly subjective, partly objective. In so far as the standard is acquired by the personal experience of the master it is subjective. The unreasoned but very effective knowledge of boy nature that enables an efficient master who is guiltless of any acquaintance with educational theory to know how a boy is likely to act in given circumstances results from the training of experience, and is peculiar to its possessor. On the other hand, the knowledge of boy nature that has been acquired by deliberate study and by experiment is something that has an existence independent of the individual. It is objective, or at any rate has an objective bias.

We must distinguish in practice between the average and the type. The average boy may have no existence in reality, he may be a pure abstraction; but the type is concrete, and may be regarded as the embodiment of all the essentials that go to make up the average, with the addition of certain qualities that must be present in some form or other, though the particular form is immaterial. The average is to the type as the concept is to the generalised image. The type may form a very useful standard for masters whose tendency is strongly towards the concrete, but the average has a special and a different value, and in capable hands is more effectively applied because it is of a wider range. To consider a class as made up of types tends to break up the class feeling, and make the master think of his pupils as a mere group of separate individuals. Undoubtedly the master must in certain connections think of his pupils as individuals, but in other connections he must deal with his class as a whole, as a psychological unit.

What is the use, it will be asked, of information about how classes in general act? What we want to know is how this particular class before which I stand is going to act. But this is to confound the practice of a science with the science itself. There must always be an intelligent intermediary between the principles of a science and their application to the affairs of life. In this respect the nascent science of education differs in no way from those that are more fully developed. The educator who prides himself on being specially practical is frequently very unreasonable in his demands from educational theory. He is rather apt to complain that it does not supply him with sufficiently detailed instructions. What he wants is a series of recipes

which, if scrupulously followed, will inevitably produce certain specified results. But such men take a very humiliating view of their profession. So far from seeking this spoon-feeding, they should rejoice that their work demands the exercise of intelligent initiative. Herein consists, in fact, the dignity of the educator's office. He must be master of the organised knowledge that education has acquired, and must have the power of making the appropriate application of that knowledge to every case as it arises. To assist him in avoiding error he is entitled to look for an objective standard at the hands of those who make education their special study, but for the use of that standard he must himself accept the full responsibility.

GENERAL AND VOCATIONAL EDUCATION.¹

By MISS L. M. FAITHFULL, M.A.,
Ladies' College, Cheltenham.

THE purpose of school education may be defined as the development of all the powers of a boy and girl to the highest point of which they are capable at any given time, so that they may be enabled later to make the best use of life and serve the community to which they belong. To this end, as educators, new fields for research must be opened, as well as new interests and resources to stimulate and invigorate. We must extend the range of mental vision so as to uplift with joy and wonder and admiration.

Liberal education aims at this without any regard to the application of knowledge to any particular use in a calling or profession, but solely as a power and possession to fit the individual for the understanding and enjoyment of life, and, generally speaking, to give him some comprehension of his capabilities and control of himself and them.

Vocational education, as I understand it, regards knowledge and insight chiefly as a means to a particular end. They are to be applied to a special purpose, which purpose must be in the mind of the educator. In fact, learning is not to be sought for its own sake, but subjects are to be adopted or discarded in proportion as they tend to produce a worker skilled in a special profession or trade.

The arguments in favour of specialised instruction for girls as well as for boys at an early age are many and easy to enumerate. First, that in this age of competition it is essen-

tial for success that each girl should be ready as soon as possible to begin her work in life, and start equipped for the race, which is, alas! often "to the swift." She cannot afford, we are told, to wait till she leaves school to learn her trade, and we recognise the force of the argument. But while admitting the necessity we deplore it. We do not want the utilitarian motive to loom too large in early education.

Secondly, it is unquestionable that children get pleasure from what appears to them to be contact with real things. They like to mix a pudding, to make a wheelbarrow, to paper a room, better than to work out problems in arithmetic concerning papering and building. But is it well in a commercial age to emphasise the idea that the material side of life is all-important? Are they not touching real life too in reading a play of Shakespeare, and moving in a world of ideas not only contributing to their enjoyment, but of immense importance to their conduct in after-life?

We shall surely be doing wrong if we let children imagine for a moment that history and literature are of less value in their school life than domestic economy or wood-carving because it is unlikely that they will be historians or men of letters. Subjects must rank in importance according to their power of filling the heart and mind and soul of man, and the facility with which a bank clerk can add his columns of figures is not worth the sacrifice of hours in school that might have been devoted to geography or literature, though it may now be a painful necessity to begin his special training in the latter part of his school-days.

I would also urge that there is a very grave danger lest we encourage parents to make claims on us as school teachers for specialised instruction which will prove hard to resist and disastrous to the best interests of education. They are only too ready now to ask that John or Mary should give up mathematics, and devote far more time than we think desirable to art or music, because at the age of ten they think they discern in the child a musical prodigy or a future Academician, or, it may be, because the grappling with algebra or geometry does not interest the child. If a course of instruction can safely be determined by commercial considerations, or changed by caprice, it is one which has not been carefully planned to meet the needs of the child's nature, or coordinated with a view to a liberal education.

In education, as in other departments of life, we have to guard against the desire for quick returns and immediate results: we must take long views, and while adjust-

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

ing our education to the real needs of the day, and avoiding a narrow conservatism, wage war against the tendency to encroach on the few years of school life and turn our classrooms into workshops.

Again, while it is no doubt true that a child loves making things in school, this is in part due to the fact that it is playwork, and that the drudgery which is a part of such work when it becomes a matter of daily routine is eliminated from it in school.

It must be admitted that specialisation gives a sense of competency, and that a mastery of anything, however small, is extraordinarily vitalising; that it gives a sense of self-respect, and makes a child feel that he is on the high road to becoming effective among his fellows. In games, in the farm, the workshop, the house, the boy or girl who is handy and trained and knows how to work has an assured position, and is stimulated to increase the range of achievements. But it is easy to be too content with achievements of a not very exalted kind, and we must not over-estimate manipulative skill, and although it may be only possible to proceed a very little way during school years in science or history or literature, only possible to open a window through which a glimpse may be gained of a wide and spacious land, is it not worth while to do this, if the view thus gained wakens a thirst for further exploration, a desire that may have to be long suppressed, but in the end may be indulged to the infinite enrichment of life?

It must not be forgotten that education should prepare for the leisure hours as well as the working hours of life, and for those of us who have to do with girls it is especially important to remember that they should be prepared for the leisure that the majority of them are likely to have in greater measure than their brothers. "But," as Dr. Davenport has pointed out, "the farmer, the craftsman, the industrialist generally labours only in the daylight hours and for a portion of his time. What he does with the balance of his waking energies is of the utmost concern. Here is the great racial asset, both social and psychical, both economic and political." We have no right, I think, to be much influenced in our educational views by the fear of national competition in trade, any more than by the thought of individual competition. National prosperity is to be achieved by national morality, national happiness and width of view, as much as by national industry and skilled workmen.

In our schools it is one of our great privileges to give to the children under our care some idea of the possibilities that the world of knowledge holds for them, some con-

ception of the mysteries and revelations which await them. To specialise at too early an age is to divert the mind from its task of getting some insight into the connection of the various branches of knowledge with life and with each other. General education must precede specialised training, for it must furnish the framework into which the latter must fit, and it must never be dominated by the vocational idea. It must also shape the mind for receiving the later specialised training. Only if school life can be somewhat prolonged is it safe in our secondary schools to add to the already overcrowded curriculum much technical training and the definite preparation for secretarial work, medicine, domestic science, or horticulture.

I believe that it is wise to be bound as little as may be by conventions in education, and to be ready to let a child who is as deficient in mathematical power as in feeling for music discontinue both subjects, but certainly not until a fair trial has been given to each, and it must not be forgotten that both taste and ability for a subject develop sometimes with surprising suddenness and in a manner unexpected by teacher or pupil. This point suggests another argument against too early specialisation, namely, the increasing difficulty of deciding on a child's future career and the danger lest, having devoted considerable time to acquiring skill in a craft or in obtaining training for a profession, some new and more attractive opening suggests itself, and the aptitude acquired with difficulty and with great expenditure of time is of little use and soon lost. Indeed, it is more than likely that the choice of a child of 14 will not be that of the girl of 18. It seems that there is in secondary schools and in the universities a growing disinclination to decide early on a career just because there is a desire to see much, to know much, and to weigh well before arriving at so vital a conclusion.

In elementary schools one recognises that the conditions are different from those in many secondary schools. The importance of getting a boy or girl into skilled employment is very great. The teacher is a safer guide than the parent with regard to the future work, for the parent is apt to consider the career exclusively from the wage-earning point of view. So the specialised training in school becomes almost essential, but it should be strictly limited, for the years of compulsory school life are at best all too short, and they are probably the only years when any study can be pursued independently of its monetary value, and history, literature, or geography must not be sacrificed for bookkeeping and the like.

In secondary schools I am in favour of

providing specialised instruction for girls above the age of 16, while encouraging the continuance of certain studies from the ordinary curriculum. Thus courses for girls above 16 in domestic science, library training, music or art, including handicrafts, meet a real need, but they are supplementary to and follow upon a good general education. It cannot be urged too strongly that all manual work should be taught in a liberal spirit, with emphasis on its connection with the wider fields of knowledge that surround it, and it is, of course, of equal importance that the humanities, if they are to make their appeal and produce their due effect, should be treated in no narrow or pedantic way.

It is true that there was never an age when it was more important that the whole body of citizens, the leisured and professional, the capitalist and the worker, should alike be in touch with industry and the actual machinery of life in its various branches. The theorist and the dilettante in learning, divorced from experience and responsibility, who have not come into close contact with life in the application of their knowledge, are not likely to lead or influence their fellows to form sound opinions and right judgments in the complicated problems of labour and government which are crying aloud for practical statesmanship.

But it must not be forgotten that the world also needs ideals—that “no State requires governors so enlightened as the State in which all are governors” (Jones).

The national education must make it an aim to bring each boy and girl into touch with the greatest minds of all ages, and regard the child not as a future factory hand, mechanic, teacher or domestic servant; but as a potential anything, for there is now no permanently closed door to any profession or calling. After a good general education the boy and girl should be in a position to shut many doors and determine by choice a certain path to be followed. It is at this point of individual choice that help should be given towards a specialised education for a specific employment, and the pupil should be accustomed to the idea that such a choice has to be made.

Every nature is strengthened by a purpose in life, if it be a worthy one. So each boy and girl is the better for deciding to what use to put the education received. Let them feel that general education is a good in itself, to be pursued in no utilitarian spirit, but to be used for the betterment of the home, the empire, and the world in some way. Let no subjects be allowed a place in our school course that cannot justify their existence, but let us interpret that phrase widely and remember that the greatest lesson to be mastered by every

school girl is “how to learn,” and if that is mastered she at once possesses the ability to rise in any profession. The capable workman or artist, head of a department or Minister of the Crown, is not the one who has applied himself exclusively to his craft, but the one who has a wide vision, extensive knowledge, and the ability to deal with men and matters.

VOCATIONAL TRAINING IN EDINBURGH.¹

By J. W. PECK, M.A., F.R.S.E.

Late Clerk and Treasurer to the School Board of Edinburgh.

IN the very short time at my disposal I propose to indicate briefly what the position of the capital of Scotland is in regard to vocational training. That is at present the subject of most interest in the field of education; and though Edinburgh is not a great industrial centre, yet I think we can show results which are of considerable practical value.

My paper will fall into three parts:—

(1) The industrial characteristics of Edinburgh.

(2) How the educational system is related to these characteristics.

(3) The future lines of development.

For the first we may go to two sources—the national census of 1911, and a special educational census taken by the Edinburgh School Board in 1910. The national census gives us, classified under twenty-three main heads and 403 sub-heads, the occupations of the Edinburgh population of 320,000 persons. The figures for the principal occupations, arranged in order of magnitude, show the importance of the printing and building trades, and also the large numbers of clerks and domestic servants. The special census of the Board dealt only with the occupations of young persons between fourteen and eighteen years of age. These two censuses are the facts which the Education Authority has to consider in framing its scheme of vocational education in Edinburgh.

As to results, in the first place we do secure that out of 17,000 young persons between fourteen and eighteen years of age, about 12,000 submit to some form or other of vocational training or higher education. This is about two-thirds of the total between the given age-limits. It is a high proportion relative to what holds in other towns, and it is secured by voluntary methods—advertisement, canvass of all pupils leaving the elementary schools, pressure by teachers, addresses by

¹ Paper read before the Educational Science Section of the British Association, Dundee, September, 1912.

members of the Board, influence of the Juvenile Labour Exchange, cooperation of employers, sympathy of the Press and of the pulpit. We could, under the Scotch Education Acts, pass by-laws making such attendance compulsory. We have not done so yet, but if other means fail to reach the remaining third, that may come.

Let us now consider what happens to one of these young persons beginning from the time he is leaving the elementary school. He first comes under the influence of the Juvenile Labour Exchange, which is managed in Edinburgh jointly by the Education Authority and the Board of Trade. He is advised as to the choice of a career by teachers and by officials who have studied the economic conditions of the various trades, he is placed in an appropriate situation, and he is given guidance as to his educational work. The Exchange operates on all who leave the elementary schools—about 4,500 a year. Of this number about 3,000 come personally to the Board Office for advice and information, and about 1,300 are placed in situations by the direct agency of the Exchange. The issue of special pamphlets bearing upon the Edinburgh industries is a feature of this work.

The boy or girl thus passes to his vocation by day and his further education by night. In the latter we aim at giving him four things:—

A. Training for his occupation.

B. Training in English language and literature.

C. Training in citizenship.

D. Physical training.

But, of course, under the voluntary system, with free choice of classes, we cannot insist on each of these four elements in their proper proportion. We do all that advice can do, but it must be admitted that full and balanced courses are not taken by the majority.

A. As regards the first element, we try to provide for all the principal industries of the city, and we aim at a practical instruction with adequate tools and apparatus conducted by chosen experts. For example, we have recently opened a range of workshops in the West-end of the city which are probably the best of their kind in Scotland at the moment. There are eighteen rooms allocated to the following subjects:—Engineers' and brass-finishers' work, tinsmiths' work, moulders' work, patternmaking, cabinetmaking, joinery, plumbing, upholstery, plaster-work, tailoring, practical science, drawing, cookery, laundry-work.

A very successful year's work has been carried on in these workshops by about 400 pupils drawn from the trades referred to above.

In other parts of the city similar work is carried on, though not as yet in the same efficient surroundings. It is proposed to establish similar buildings in other parts of the city, so as to satisfy completely the demand shown by the census figures. In the equipment of these workshops and in the selection of trade teachers, we are helped by the advice of twenty advisory committees of employers and workmen, one for each trade represented.

B. As regards the English language, it is felt that every pupil should take this study, whatever his vocation. About eighty classes in the subject are held in various parts of the city. Of the 10,000 pupils in the Board's classes, however, only about 3,000 (30 per cent.) take these courses.

C. As regards training in citizenship, there is similarly no question of the value of the subject. A narrow conception of vocational training would be fatal in a developing industrial democracy. Accordingly, we have regular classes in citizenship held in about ten centres, and in addition we organise special lectures by eminent men to massed gatherings of all the continuation-class students, encourage the formation of literary and debating societies, and arrange reading rooms for private study. But it must be confessed that only about 250 of the 10,000, viz., 2½ per cent., follow a regular course in citizenship.

D. For physical training we provide classes in six centres at which about 500 attend, and classes in swimming at about nine centres. There are recreative classes in dancing, and I suppose singing may also be counted a form of physical exercise. Of the 10,000 students, however, only about 1,100, *i.e.*, 11 per cent., take any form of physical exercise.

A word as to the teachers. They are of two kinds—professional teachers, and those who are engaged in some occupation other than teaching during the day. Of the former there are 270, of the latter 220. Generally we attempt to retain the feature of the old apprenticeship system, viz., that the craftsman should also be the teacher of his craft. It is the only way of counteracting the effect which the specialisation of modern industry has on the apprentices of to-day.

In passing, I may say that we have instituted for these continuation-class teachers courses of lectures on teaching method accompanied by practical demonstrations in class management. The aim of this is to give what the craftsman lacks—knowledge of educational methods. All our non-professional teachers are required as a condition of appointment to undergo this course of training.

When the boy or girl has spent from two to three years in these classes, he is advised to pass on to one of the central institutions, with the work of which the Board's work is carefully co-ordinated. These institutions are the Heriot-Watt College for Science and Technology, the College of Art, the School of Domestic Economy, the Veterinary College, the Agricultural College. In one or other of these he receives more advanced instruction in his trade or occupation, and so prepares himself for the higher positions in industry. Every effort is made to induce the pupils to pass on to these higher courses, but only about 230 out of 1,000 qualified did so last year.

This is our system based upon a careful study of the needs of the city and of the practice in other parts of the world, especially in America and Germany.

What is our criticism of it? I give four points:—

(1) Some system of compulsion should be adopted. It is true that our numbers have gone up by leaps and bounds during the last ten years. But we are now under the law of diminishing returns, we have got to the residue, and it is doubtful whether many of the remaining 5,000 will be touched by voluntary methods. With compulsion will have to go a corresponding restriction of the hours of boy and girl labour. A reasonable half-time system applicable to all the population between fourteen and seventeen is what is wanted; and it must be directed to all occupations, unskilled as well as skilled.

(2) The compulsion should not be directed merely to enforce attendance. Regard should be given to the need for securing to each pupil the four elements of continuation-class education referred to above, viz., instruction in the vocation, instruction in English, instruction in citizenship, and physical training. At present, as we have seen, only 30 per cent., 2½ per cent., and 11 per cent. take the last three elements respectively. Each of these should form a part, and a substantial part, of the course for every pupil. With the physical training should go medical inspection at appropriate intervals. If conscription must come, compulsory physical and military training under the education authorities might be the least objectionable form. The civic and physical aspects would thus receive more emphasis than under a purely military organisation.

Especially does the civic training demand close attention. At present it is a rather casual thing taken up by a teacher who may be interested in forms of government. It should, of course, be far more than this. The

spirit of civic duty and responsibility should be made to pervade all the work of the continuation schools. In addition, special teaching in personal hygiene, relations of individual to individual, and the organisation of masses of individuals in village, city, and nation should be taught. A vigorous attack by our most enlightened educationists should be made on this part of the position. At present it is overshadowed by the mere technical instruction.

(3) Just as the pupils should be exempted from a too exhausting day given up from end to end to work and education, so should the teachers. The principle of the two-session day already introduced on a small scale in Edinburgh for the professional teachers should be extended to all such teachers. Six hours a day is as much as any one can teach with efficiency and freshness. And the work of the non-professional teachers should also be so organised as to avoid what at present we have, viz., a long and exhausting day in the shops, followed by two or three hours of hard teaching in the evening. To achieve this, the co-operation of the employers must be secured, for it will be desirable that the teachers should maintain in some effective way a practical and living contact with their respective trades. As soon as the trade teacher becomes divorced from the practical shop, working under economic conditions, and following closely all the latest developments, so soon will his teaching tend to become theoretical and stereotyped.

(4) The system of supervision of the young workers should be developed. Overwhelmed with advice at the point of leaving the day school, they should not be then left to their own whims, to their ignorance of future conditions, and to the vicissitudes of economic production. The State should feel that they are still potential and not actual workers and citizens, and should therefore lay itself out to counteract the narrowing influences of modern specialised and machine-ridden industries, and the destructive effects of the ordinary labour market.

This can only be done by a well-devised system of supervision in which voluntary workers backed by the statutory body will play an important and valuable part. Just as there are trade committees looking after the practical education in each industry and advising the education authority thereon, so there should also be a system of welfare committees organised on a basis of small districts to look after the general interests of the developing citizen.

These would be analogous to the care committees now general for children of school

age, but they might quite reasonably take in their purview all the young people, and not merely, as in the case of the care committees, the destitute and the neglected. They will not supplant the home influence, but will supplement it with a wider knowledge and a more authoritative appeal. They should be a sort of clearing house in each district for all the specialised activities of philanthropy such as boys' clubs, guilds, church agencies, athletic organisations, and the like. They are needed to focus these efforts and to give the personal touch which can only be attained by energetic committees working in small districts at all aspects of the social activity. They should always be dependent on the statutory education authority, so as to have the backing of its prestige, legal powers, permanence, and funds.

TEACHERS AND EDUCATIONAL RESEARCH.¹

By T. RAYMONT, M.A.

Goldsmiths' College (University of London).

II.

LAST month I dealt generally with the part that teachers might play in educational research, and I began a statement of typical problems that seem to deserve attention at the present time. I now proceed to complete this statement, at the same time reminding the reader that it is meant to be merely suggestive.

PROBLEMS RELATING TO TEACHERS.—So far as the training of secondary-school teachers is an accomplished fact, most questions relating to young teachers are naturally and effectively dealt with in the colleges. But there are some that could better be undertaken in the schools. Among these may be cited the question of *general fitness for the teaching profession*. More people probably drift into the teaching profession than into any other. They go on from one school success to another, win scholarships, and proceed to a university, thinking little all the time of what is to happen afterwards, until at length there seems nothing else to be done but to become a teacher. Yet there are few occupations from which unsuitable people need more emphatically to be warned off. To a person ill-fitted by temperament for controlling a class of lively girls or mischievous boys, the life of a teacher is a series of irritating pinpricks. And this is only one mode of unfitnes; there are many others. It would be both interesting and highly profitable if, with the help of a large number of experienced teachers, fairly definite answers could be obtained to such questions as these:—

In what circumstances is it likely that a young man or woman who begins as a "bad disciplinarian," or as an otherwise ineffective teacher, will improve with time and "get on"?

In what cases is it best to advise an immediate change to another occupation?

Is there no shorter and easier way of settling such cases than the way of bitter experience and disappointed hopes?

Another promising subject of investigation is the *relation between ability to teach and ability in research*. It is often assumed that, at least as regards school teaching and the lower grades of college teaching, these two kinds of ability are in inverse proportion. Doubtless a good deal depends upon what precisely we mean by "ability to teach." If by this is meant ability to expound and illustrate the elements of a subject, so that what the pupil learns he clearly understands and can reproduce readily, say, in an examination, there may be much truth in the common opinion. But if "ability to teach" means ability to stimulate one's pupils to think out things for themselves, one might venture to affirm that the habit of mind induced by research should be a teacher's chief asset. Such an affirmation would, however, be again in the nature of mere opinion. A careful investigation of a large number of cases might yield results which would have a more than speculative value.

Still another question, as to which there must be a mass of available data, if only someone would collect and sift it, is that concerning *women as teachers of boys*. As regards boys under seven or eight there is little room for doubt. But what of boys between seven or eight and eleven or twelve? It is, of course, easy to say that everything depends upon the particular woman. If we are thinking of marked success we might equally well say that everything depends upon the particular man. The question is whether the common prejudice against women as teachers of young boys has a sound basis in ascertained fact.

PROBLEMS RELATING TO CHILDREN.—Of these problems the name is legion. Many of them require the specialised knowledge which only a physiologist or a psychologist can possess, which, therefore, a teacher may or may not happen to possess. Others, such as those which follow, are of a more general character.

First, we may mention investigations of *school records*. The archives of some of our older schools would probably furnish a rich quarry for the pursuer of educational research. When a man has achieved fame, and his biography is written, curious facts sometimes come to light about his wretched failure as a schoolboy. In such cases the fault pretty

¹ The first article appeared in THE SCHOOL WORLD for September, 1912.

clearly lay with the school, and not with the boy; there was something in the system that prevented the boy from "finding himself" whilst he was within its grip. On the other hand, it would be profitable to know what kind of success at school usually goes with what kind of success in later life. And the material probably exists for investigating thousands of cases, though, here as elsewhere, the investigation should be carried out in a purely impersonal and scientific way.

Next, the fact is very well known to all observant teachers that both on the physical and on the mental side there are periods of marked *acceleration and retardation* in the growth of boys and girls. But in what way the physical and the mental are connected—whether, for example, rapid physical growth usually coincides with extraordinary mental progress, and slow physical growth with marked mental inactivity—are questions to which at present we do not know the answers.

PROBLEMS RELATING TO TEACHING.—The problems that come under this head fall into two great classes: those of a general character and those that bear upon the teaching of special subjects. To make suggestions regarding the latter is scarcely within the competence of any one person. One may, however, point to the rapid changes that have taken place in the teaching of mathematics and of modern languages, to the still more recent attempt to introduce oral methods into classical teaching, to the proposed use of documents in teaching history, and to the adaptation for school purposes of the newer geography—as exemplifying the effects of intelligent experiment. The recent discussions in THE SCHOOL WORLD on a standard sequence of geometrical propositions, and on the use of practical exercises in the teaching of geography, are only particular instances of the truth that all these reforms are still in the unsettled and tentative stage. In the department of "special method" there is no limit to the work that remains to be done. But we must here proceed to point out instances of a more general character in which experiment is needed.

The tradition of the secondary-school classroom is strongly on the side of individual competition in all intellectual work. The whole apparatus of marks, places, prizes, and order-of-merit lists is sufficient testimony to the fact. That there is a good side to competition, provided the general tone of the class is good, everyone will allow. It stimulates some to greater effort, and trains all to play the game. But surely the teacher goes to great lengths when mutual help is made a moral offence. Anywhere else but in a school this would indeed be a "new sin"; there it is a very old

one. Is there no place for *co-operation* as well as for competition? If the schools were not held so tightly in the grip of the external examiner, teachers would probably soon find an answer to this question. Meanwhile, there is room for research upon the respective places of competition and co-operation in intellectual training, and there is room for experiments in *group-work* in the teaching of many subjects.

A brief reference has already been made to the problem known as the *transfer of training*, *i.e.*, the question whether and how far a specific training in one direction has any general effects. The experts in "pedagogical research" return an answer with which the average teacher would probably disagree. Not long ago I heard a classical teacher proudly refer to a letter he had received from an old pupil who had successfully taken to farming in Canada, and who thanked his former teacher for imparting to him, through the medium of Latin prose, the qualities of "judgment and resource," qualities which had stood him in good stead as a farmer. To neither does it seem to have occurred that possibly the qualities of "judgment and resource" were simply *there*, and were exercised at one time upon Latin prose and at another time upon the rotation of crops. Only the other day an American professor of biology drew similar conclusions from similarly insecure premisses, *i.e.*, from the fact that his best pupils came from what we should call the classical side. Was this due to a mysterious intellectual virtue communicated by classical studies, or was the intellectual virtue simply *there*, exercised at one time upon classics and at another upon science? This is the kind of problem that teachers have frequent opportunities of attacking, if they will only be on the look-out for such opportunities. But they must be more careful logicians than our American professor.

PROBLEMS RELATING TO EXAMINATIONS.—The great outstanding question under this head is probably that of *the relation between external and internal examinations*. In the sphere of primary education the teachers have gained all the liberty they could desire in framing syllabuses of instruction, and all the part they could desire (some would say too great a part) in testing the results. Exactly the same thing has been going on in the sphere of university education, especially since the younger universities came into existence and the University of London yielded up its former function of examiner-in-general to the local colleges. There must thus be a good deal of available evidence as to the difference it makes to a teacher—to the spirit in which his work is done, and to the likelihood of his putting into it his best in the way of originality and thought

—whether he is bound by a syllabus which he had no voice in settling and has no power to modify, and to an examination which, like the wind, bloweth where it listeth. If such evidence could be collected and thoroughly sifted, it might turn out that there are overwhelming considerations of principle which must in the end be held to outweigh those practical difficulties which caused the Consultative Committee, in its report on secondary-school examinations, to take up a somewhat conservative attitude. It may turn out, in other words, that there are no good reasons in the nature of things why the secondary-school teacher should have less freedom than the primary-school teacher, less than the college teacher, and probably less than the practitioner of any other profession that could be named.

PROBLEMS RELATING TO ORGANISATION.—Among problems of organisation, that of *co-education* needs only a bare reference here, so well is it known as a battle-ground of educational controversy. It is being made the subject of deliberate experiment, and in other ways there is a considerable amount of experience now available for research. Here, again, we have opinions and abstract discussions without end. What is wanted is a reasoned analysis of the conditions under which the system is likely to prosper, and of the benefits that are likely to accrue. But such an analysis must, of course, be preceded by an extensive and accurate marshalling of the ascertainable facts.

In many day schools definite experiments have been tried with the view of establishing helpful relations between *the home and the school*. Of the importance of such relations there can be no doubt from the point of view of the child's welfare. But at present the manifestation by a parent of an interest in his child's education is variously received by the teacher; sometimes cordially, sometimes coldly, and sometimes even resentfully. In special cases there are, no doubt, very good reasons for coldness and resentment. Yet, *on the whole*, what is the right relationship to aim at, and how is it to be brought about? Experiments, some on a large and others on a small scale, have been tried. Many more ought to be tried, and the combined results ought to be made available for the general good.

Again, the possibilities of the *school magazine* may be suggested as a type of problem that readily lends itself to comparative treatment, and that would well repay investigation. It would be necessary to make an extensive collection of specimens from schools of different grades, to study the conditions of editorship and production, to analyse the contents, and finally to form such an estimate of what

is being done in this department of school activity as would be of general service.

PROBLEMS IN THE HISTORY OF EDUCATION.—Only a brief reference is here possible to the large subject of the history of education, and the opportunities it presents for industrious research. To go no further, *the history of education in England* cannot yet be written in any connected and comprehensive manner, because the materials are not available in usable form. The clay has not yet been dug out for making the bricks for the construction of such an edifice. Much has been accomplished, but a vast deal more remains to be done. It is useless to look only to our professors of education, because they are few in number, and are mostly busy upon other work to which they feel more clearly called. But there must be many young schoolmasters well equipped, both as historians and as practical teachers, who would find research in the history of education in the highest degree congenial when once they set about it.

And apart from the history of education in general there are many inviting corners of the field that await the curious inquirer. For instance, to the mathematical man who has also a turn for history, what could be more interesting than to trace the history of mathematical teaching, say, in this country? De Morgan long ago did some of the necessary spade-work in his account of "Arithmetical Books from the invention of printing to the Present Time," but the subject has never, I believe, been adequately followed up.

CONCLUSION.—It would be easy to extend our list of examples indefinitely, but the purpose of these short articles is to be suggestive rather than exhaustive. Moreover, the order of inquiry which involves the delicate handling of psychological data has been deliberately excluded. Those who feel competent to undertake such inquiries must seek suggestions in the technical treatises and journals devoted to the subject. Meanwhile, it may be hoped that some readers of *THE SCHOOL WORLD* will be moved to prosecute pieces of investigation of the kinds above exemplified, in which case the hospitality of its columns for purposes of discussion will no doubt be assured.

Rural Handicrafts. By George F. Johnson. 135 pp. Illustrated. (Pitman.) 2s. 6d. net.—The interest of this book is not confined, as the title might suggest, to rural schools. It deals with the subject of manual training in a manner calculated to appeal to town and country boys alike by means of a scheme of work which involves the construction of various utensils employed in the house, the garden, and the farm. The subjects chosen afford varied exercises in wood and metal work, as well as in the manipulation of rope and hemp; the descriptions are clear and concise, and the book is liberally illustrated.

MOVEMENTS IN HANDWRITING.¹

By ROBERT R. RUSK, M.A.(Glasg.), B.A.(Cantab.),
Ph.D.(Jena).

FORMERLY writing was an accomplishment: to-day it is a necessity. This change is even reflected in the terminology, for, whereas we used to speak of penmanship, now we speak of handwriting; writing has passed from being an art to being a mechanical process.

The change in the point of view from which writing is regarded would seem to carry with it a change in the method according to which it should be taught. A method which combines rapidity with ease of execution is the method for which the changed conditions call.² Attention must accordingly be withdrawn from the product in writing and directed to the process: we must turn from the object to the subject. Judd, for example, in his "Genetic Psychology for Teachers,"³ states: "One of the troubles with our teaching of writing has been that we have had our eyes too much on the lifeless, material paper and ink, and not enough on the pulsating human being back of these material things." Dr. Maria Montessori, for the results got by whose method much is claimed, likewise states⁴: "It need scarcely be said that we should examine the individual who writes, not the writing."

If, then, we consider the psychological aspect of writing—using "psychological" in the sense of "the positive science of the behaviour of living things," rather than in the restricted sense of "the science of mental process"—we may divide the psychological processes involved in handwriting into two classes:—

(1) The mental preparation; that is, the influence on handwriting of whether a person writes from a printed copy or set model, or writes to dictation, or from memory.

(2) The expression of the psychic impulse as it appears in movements of the fingers, hand and arm, or in the pressure exerted in writing.

Here we confine ourselves to the subject of the movements made in writing, a subject which has been investigated almost exclusively by American psychologists—for example, by Judd, McAllister, and Freeman.

In illustration of the fact that the attention of educationists is now being directed to the movements in writing, we may refer to the

method adopted in the Montessori system of impressing on the mind of the child the forms of the letters. This is attained by getting the child to trace with his finger the forms of the letters, that is, by the use of tactual and motor imagery, not, as is usually the case, by getting the child to memorise the forms visually. The psychological justification given by Dr. Montessori⁵ for this procedure is that the muscular sense is most easily developed in infancy. This view demands investigation and confirmation, since it has been customary for psychologists to maintain that the capacity for acquiring activities which involve skill and dexterity develops to a marked degree only about the age of eight or nine.

Passing to the consideration of the ordinary practice of writing we find that there are three movements involved:—

(1) The finger movements, usually employed to form the rounded elements of letters, and, in some cases, also the upward and downward strokes;

(2) The movement termed "pronation," which consists in rotating the hand, so that it tends to lie flat on the palm;

(3) The movement in the shoulder-joint and at the elbow, which admits of the passage of the hand across the page.

Taking the third movement, that of the arm across the page, we find that the easiest movement of the arm is an outward movement almost at right angles to the forearm. If this movement were adopted and the paper placed parallel to the desk, the writing would run upwards, thus:—

abcde|ghijklm

To admit of the easiest movement of the arm across the page and at the same time to keep the lines parallel to the base of the paper, it is necessary to tilt the paper until its base is almost at right angles to the forearm.

This is the position, it will almost universally be found, which the notebooks of students assume when much notetaking has to be done. On being questioned, students will admit that the books are so placed because this position is the easiest for writing, but when asked if they would allow pupils in school to place their copybooks in the same position, they have some difficulty in finding a consistent reply.

When the paper is not so tilted, the tendency for the hand to move upwards is

¹ Paper read before the Educational Science Section of the British Association, Dundee, September, 1912.

² A high degree of legibility is not now required. This can be attained by the use of the typewriter. It may even be the case, as has been maintained by Thorndike in regard to American schools, that we are training pupils to write too well, that is, training them up to a standard higher than that attained in ordinary practice by adults. Cf. E. L. Thorndike, "Handwriting," *Teachers' College Record*, March, 1910, p. 78.

³ P. 162.

⁴ "The Montessori Method," Eng. trans. (Heinemann), p. 260.

⁵ Eng. trans., p. 266.

counteracted by a movement which draws back the hand and thus enables the writing to keep the lines. This additional movement can be dispensed with by the proper adjustment of the paper, and a needless expenditure of energy thereby avoided.

Experiments have been made by McAllister⁶ to determine at what angle the easiest upward or downward movements can be performed—the degree of difficulty being estimated by the time taken to execute the movement. If the movements in the first quadrant of a circle—that is, between 0° and 90° —are taken as the standard, movements in the second quadrant—that is, between 90° and 180° —are found to require 30 per cent. more time, movements in the third quadrant 10 per cent. less, and movements in the fourth quadrant 25 per cent. more than the standard. These measurements condemn "backhand" writing, since such a slope entails movements comparatively difficult to make, and thus reduces the speed to such an extent as to make this form of writing inadvisable. A recent investigation by Dr. Ayres, of the Russell Sage Foundation, New York, confirms the view that "backhand" writing is executed more slowly than vertical, medium slant, or extreme slant writing.⁷

Freeman maintains⁸ that the most natural direction for a downward stroke is towards the body. This would result in vertical writing if the base of the paper were placed parallel to the edge of the desk; but if the paper is tilted as we have already recommended, and the downward stroke is made towards the body, the resultant writing is inclined to the right in the same degree as that at which the paper is tilted. Thus writing with a slope is the writing easiest to execute.

Vertical writing can be most quickly read—but only about four words per minute more quickly than medium slant,⁹ and in practice, it is maintained, legibility depends largely on whether or not the writing conforms to the conditions necessary for ease and rapidity of movement.

The position of the paper and the direction of the downward movement in writing, although these result in writing with a slope, nevertheless satisfy the conditions required for the hygienic posture of the pupil at the desk.

The second movement—that of the wrist to keep the palm of the hand flat on the paper—seems to be quite unnecessary. It likewise

⁶ For fuller account of McAllister's investigations see the writer's "Introduction to Experimental Education" (Longmans), pp. 257-260.

⁷ The rates in average number of words written in ten minutes for the various slants are: vertical, 115.3; medium slant, 114.6; extreme slant, 116.1; backhand, 101.0.—Leonard P. Ayres: "A Scale for Measuring the Quality of Handwriting of School Children," p. 16.

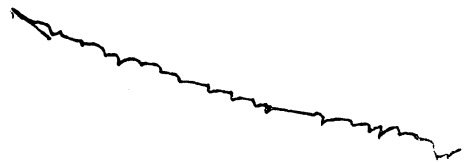
⁸ "Some Issues in the Teaching of Handwriting"—*The Elementary School Teacher*, vol. xii., p. 3.

⁹ The rates of reading in words per minute for the various slants are: vertical, 180; medium slant, 176; extreme slant, 172; backhand, 168.—Ayres: "A Scale for Measuring the Quality of Handwriting," p. 15.

occasions a needless expenditure of energy, and retards the rate of writing without conferring any advantage in legibility. The movement of pronation should consequently be dispensed with, and writing on the side of the hand should be allowed.

Before we can decide what method should be adopted in the teaching of writing, we must ascertain what is the easiest movement required to form the letters. This resolves itself into the question whether the finger movement or the hand-and-arm movement is the easier. We are fortunately enabled, by the adoption of a simple contrivance devised by Judd,¹⁰ to isolate the movements of the hand from those of the fingers, and to obtain records of the former. Thus for any style of writing we can register how much finger movement is involved.

The tracing obtained from the hand-and-arm movement is readily distinguishable from that got from the finger movement. The



Hand and Arm Movement



Finger Movement

former appears practically as a reduplication of the original writing: the latter presents the appearance of a straight line indicating merely the movement of the hand across the page. Tracings taken of children's writing reveal the fact that there is a movement of the hand for long letters and in the passage from letter to letter; for medium length letters there is no movement of the hand. The method of teaching in our schools seems to require the letters to be formed solely by the finger movement.

Adults who have much writing to do, however, relinquish the finger movement and adopt the hand-and-arm movement. The excessive use of the finger movement is probably the cause of writer's cramp, and to those who are thus afflicted, the use of the hand-and-arm movement should be recommended. In

¹⁰ For description and illustration of tracer, see Judd, "Genetic Psychology for Teachers," pp. 170-1.

America, where commercial considerations appear to influence the school methods more directly and more effectively than they do in this country, the hand-and-arm movement is almost exclusively used. The alternative that is considered in America is whether the hand-and-arm movement should be used solely, or, as Freeman of Chicago suggests as a result of a recent investigation,¹¹ whether the hand-and-arm movement should be used to form the upward and downward strokes while the rounded elements should be executed by the finger movement. The exclusive use of the finger movement was not considered by Freeman,¹² its disadvantages being, in his opinion, manifest.

What has to be determined is the question which of the movements is the easiest, the exclusive finger movement, the exclusive hand-and-arm movement, or the hand-and-arm movement for the upward and downward strokes and the finger movement for the rounded elements.

Some would solve the question off-hand in accordance with a notion which is generally current in educational circles, namely, that the finer muscles do not develop till later than the large muscles, but that is what has to be proved for the muscles involved in writing. Tests are necessary with pupils of different ages and with adults to determine the ease or difficulty of the finger movement as compared with the arm movement. This is a matter for experiment. For research in handwriting, as well as in other practical aspects of education, we require the establishment of pedagogical laboratories and experimental schools. We cannot depend on psychological laboratories, as the problems which most interest the psychologist are not the problems which have a direct bearing on school practice; nor can we depend on the work done in other countries, since their problems are not the same as ours.

MESSRS. JOHN J. GRIFFIN AND SONS, LTD., the well-known scientific instrument makers, have put on the market an ingenious apparatus, the Rainbow Cup, for the treatment and the examination of liquid films. The instrument is designed to enable unpractised experimenters to investigate films, such as those of soap-bubbles, without the difficulties attendant upon the production of the bubbles. The cup is fitted with a conical transparent cap, and is capable of a whirling motion, so that the brilliant colour effects due to variation in surface tension of the film and the special effects which show line tension can be readily obtained and observed. The whole apparatus is intended to give facility to the study of the results embodied in "Soap-bubbles, their Colours and the Forces which Mould Them," by Prof. C. V. Boys, F.R.S.

¹¹ Cf. "Some Issues in the Teaching of Handwriting"—*The Elementary School Teacher*, vol. xii., pp. 53-9.

¹² *Ibid.*, p. 55.

PERSONAL PARAGRAPHS.

THE Governors of Christ's College School, Christchurch, New Zealand, have elected Mr. Ernest A. Baldwin to the headmastership, rendered vacant by the death of the Rev. C. H. Moreland. Mr. Baldwin is an Exhibitioner of Lincoln College, Oxford, and has been for the past five years on the staff of Clifton College. He was for six years Senior Master at Durban High School, Natal, and is therefore not fresh to colonial life.

* * *

THE REV. C. H. MORELAND had held the headmastership since 1904 and had previously been a master at Norwich Grammar School for twelve years. He, too, was a Scholar and Exhibitioner of Lincoln, to which college he went from Clifton College; he took a first in Mods and a second in Greats, and spent about two years in Germany at Berlin and Leipzig.

* * *

MISS ALICE FLEMING, vice-headmistress of Milham Ford School, Oxford, has been appointed headmistress of the Brighouse Girls' Secondary School, Leeds, and the vacancy thus caused has been filled by the appointment of Miss J. S. H. McCabe, of Cheltenham Ladies' College.

* * *

THE Finance Committee of the Bradford Corporation has recommended that the freedom of the city should be conferred on the Rev. W. H. Keeling, headmaster of the Bradford Grammar School. Mr. Keeling is the son of the late Rev. W. R. Keeling, rector of Blackley, near Manchester; he was educated at Manchester Grammar School and at Wadham College, Oxford, where he took a first in Mods and a second in Greats. He was a master at Bromsgrove and Rossall and headmaster at Northampton Grammar School before becoming headmaster of Bradford Grammar School in 1871.

* * *

THE Education Section of the British Association was this year presided over by Prof. Adams, the Principal of the London Day Training College, whose career was noticed in these paragraphs in July last in connection with his appointment to the Registration Council. His presidential address on the possibility of an objective standard in education, says the retrospect in *The Times*, will take rank as a very sane and moderate statement of the present position of the subject as a science; if it contained no new or startling discovery, it pegged out the claims upon which education may hope ultimately to take full rank among the sciences.

AMONG the contributors of papers to the section was Dr. T. P. Nunn, the Vice-Principal of the London Day Training College, a brilliant man of many parts. He graduated in Science at London University in 1890, in Arts in 1895, took the M.A. and the Teacher's Diploma in 1902, first-class honours in Logic in 1904, and the doctorate in 1907. He has held masterships at Halifax, at Wilson's Grammar School, Camberwell, and at William Ellis' School; he was for some time lecturer at Woolwich Polytechnic and science master and lecturer at the Shoreditch Technical Institute. He is now the chairman of the Board of Pedagogy, London University, a member of the Aristotelian Society, and of the British Psychological Society. Dr. Nunn's versatility has been shown both in his teaching and writing; he, at one and the same time, was sixth form master and science master in a secondary school, and was lecturing on the chemistry of their trades to the workmen at the Shoreditch Technical Institute; his writings extend from the lightest of verse in a delightful operetta to contributions much appreciated by the scientific societies to which he belongs.

* * *

AMONG the members of the International Moral Education Congress present at The Hague were a number of educationists from England. Mr. Cloudesley Brereton, who contributed a paper on vocational education, is one of the divisional inspectors of the London County Council and its chief inspector of modern language teaching. He was educated at Norwich Grammar School, Oundle School, and St. John's College, Cambridge. He is also a graduate of the University of Paris, and spent a considerable time both in France and in Germany. For some ten years he was a master, first at Perse School, Cambridge, and afterwards at Heath School, Halifax, at the Clergy Orphan School, Canterbury, and at Queen Elizabeth College, Guernsey. Mr. Brereton has written a number of papers on educational subjects, among which is a report on Rural Education in France issued by the Board of Education as one of its special reports.

* * *

MISS KYLE, the popular and energetic headmistress of the Highbury Hill School, was among the headmistresses of secondary schools who were present. Her school is to be one of those shortly to pass from the ranks of the "aided" to those of the maintained schools; another that awaits the same fate is the Maida Vale High School, a school belonging to the Girls' Public Day School Company, of which Miss Slater is the headmistress.

BEFORE these paragraphs appear the Duchess of Albany will open Queen Ethelburga's School, one of the Woodard institutions for the daughters of gentry, at Harrogate; the church adjoining and the school buildings will be dedicated by the Bishop of Ripon. The buildings comprise the school block, headmistress's house, sanatorium, lodge and chapel, of which all except the chapel are from the designs of Mr. W. Gilbee Scott. The chapel is the work of the late Mr. C. Hodgson Fowler, of Durham, and was erected at the cost of Viscount Mountgarret. The school provides accommodation for one hundred and fifty girls; the cost of the complete scheme is estimated at about sixty-five thousand pounds.

ONLOOKER.

EYESIGHT AND TYPOGRAPHY.¹

The Eye and Vision.

THE eye of the child is a growing eye. It is immature both in structure and in function. At birth the eye has a volume equal to about half that of the full-grown eye; the materials of which it is built are comparatively soft and yielding; the functional power of the visual apparatus is merely a perception of light. By growth and development, rapid at first, slower later on, the eye tends progressively to acquire the dimensions and the powers of the normal completed organ.

Nutrition by healthy blood, and the natural stimulus of voluntary use, are essential to this process. We know by experience that in early infancy disease may arrest the growth of the eye, and that suspension of use, as when a serious ophthalmia prevents an infant for many weeks from attempting to use its eyes, may check functional development to an extent which cannot afterwards be made good. On the other hand, excessive efforts, due to unnatural demands on the eyesight, are apt to be injurious in the opposite direction. Unfortunately there is evidence to show that the demand made on the eyesight of school children is not infrequently excessive.

At the age when school life begins the visual apparatus is still immature. The orbits, the eyes themselves, and the muscles and nerves which move them, have still to increase considerably in size. The various brain-structures concerned in vision have not only to grow but to become more complex. The intricate co-ordinating mechanism which later will enable the eyes, brain, and hand to work together with minute precision is awaiting development by training. The acuteness of vision is still below the standard proper to the finished eye. The refraction of the eyes is not yet fixed. It is usually more or

¹ From a report presented at Dundee, September, 1912, of the British Association Committee appointed to inquire into the influence of school-books upon eyesight. The Committee consisted of Dr. G. A. Auden (chairman), Mr. G. F. Daniell (secretary), Mr. C. H. Bothamley, Mr. W. D. Eggar, Prof. R. A. Gregory, Mr. N. Bishop Harman, Mr. J. L. Holland, Prof. Priestley Smith, and Mr. W. T. H. Walsh.

less hypermetropic, with a tendency to change in the direction of normal sight; in other words, it has not reached the ideal condition in which the eyes see distant objects without accommodative effort, but is tending towards it. In short, the whole visual apparatus is still unfinished, and is therefore more liable than at a later age to injury by over-use.

Over-use of the eyes is chiefly to be feared in such occupations as reading, writing, and sewing, not in viewing distant objects. During near work the head is usually bent forward, and the blood-vessels of the eyes tend to become fuller; the focus of the eyes is shortened by a muscular effort which alters the form of the crystalline lens; the visual axes, which in distant vision are nearly parallel, are held in a position of convergence, and if the work be reading, they are also moved continuously from side to side. It is near work, therefore, that makes the greatest demand upon the eyes, and the nearer the work the greater the strain. Moreover, it is chiefly in near work that continuous mental effort is required.

Children who do too much close eye-work suffer in various ways. Some simply from fatigue, showing itself by inattention, mental weariness, temporary dimness of sight, or aching of the eyes and head. Some from congestion of the eyes, as shown by redness, watering, and frequent blinking. A certain number, in circumstances which predispose them to the disorder, develop strabismus, or squint. Some others—and these cases are perhaps the most important of all—develop progressive myopia.

Myopia, or short sight, commonly depends on undue elongation of the eyeball. It is never, or scarcely ever, present at birth. It is rare at five years of age. It usually begins during school life, and increases more or less from year to year during the period of growth. It sometimes continues to increase after growth is completed. It is not necessarily, or always, associated with over-use of the eyes, either in school or elsewhere, for we see it arise after illness, we meet with it in illiterates, and we know that the predisposition to it is strongly hereditary. But it is everywhere most frequent among the most studious, and there is a mass of evidence to show that it depends very largely, both in its origin and in its progress, on over-use of the eyes in near work.

A moderate myopia which does not increase may be regarded as an innocent, though somewhat inconvenient, over-development of the eye. A high myopia usually involves serious stretching and thinning of the coats of the eye, and a liability to further trouble. A high myopia in a child is a very grave condition, for further deterioration always follows. In connection with myopia alone, to say nothing of other eye defects, the question of school-work in relation to eyesight deserves more attention than it has hitherto received.

The subject has many sides: the lighting of school-rooms, the arrangement of the desks, the design and proportion of individual desks, the attitudes of the scholars, the amount of work required, are all factors of importance; but they cannot be considered here. Our present effort is directed to the standardising of school-books, a very important step in the desired direction.

Small print leads the young scholar to look too closely at his book. He is not yet familiar with the forms of the words, and his eyesight has not yet reached its full acuteness. For easy vision he must have retinal images larger than those which satisfy the trained reader. To obtain these larger images he brings the book too near to his eyes, or his eyes too near to the book, and this, for the reasons already given, is apt to be injurious. Hence the importance of establishing certain standards of legibility for school-books, having regard to the ages of the scholars who are required to use them, and of employing only such books as reach these standards.

The importance of the matter becomes still more evident when we remember that, according to recent medical inspection, at least 20 per cent. of the children in our elementary schools have errors of refraction and see less easily and clearly, even when provided with proper glasses, than do normal-sighted children.

At what age should children begin to read from books? From the hygienic point of view the later the better, and there is reason to believe that little, if anything, is lost educationally by postponing the use of books until the age of seven at earliest. Beginners may learn to read from wall-charts; and in the general instruction of young children, teaching by word of mouth, with the help of blackboards, large printed wall-sheets, pictures, and other objects which are easily seen at a distance, is preferable from the medical viewpoint, for it has the great advantage of involving no strain on the eyes.

Hygienic Requirements with which School-books should conform.

The factors which have been taken into consideration are: (1) The nature of the psychological process involved in reading; (2) the quality of the workmanship employed in book-production; (3) the quality of the paper on which text and illustrations are printed; (4) the character of the illustrations and the process employed for their reproduction; (5) the colour and quality of the ink used in printing the text; (6) the mode of printing; (7) the character of the type; (8) the size of the type-faces, and their vertical and horizontal separation; (9) the length of the lines; (10 to 18) particular requirements of special subjects.

1. **The psychology of the reading process.**—The special consideration to be here noted is that the printing should be such as will facilitate the main aim of reading—viz., the getting of the meaning of what is read. The trained reader generally recognises whole words and phrases at a glance. It is therefore important that the process of beginners should be made as easy as possible towards the recognition of word-wholes and phrase-wholes by the use of type suitable in character and judiciously spaced. The best type for isolated letters is not necessarily the best for word-wholes, and attention must be given to the comparative legibility of letters as seen in context.

2. **Workmanship.**—It is possible to neutralise much of the good effect of well-selected type, paper, &c., by inefficient workmanship. In all the recommendations which follow, good workmanship will be assumed.

3. **Paper.**—The paper should be without gloss. Glazed paper is trying to the eyes by reason of reflections which are apt to interfere with binocular vision. Pure white paper gives the greatest contrast with the ink, and therefore the greatest legibility under average conditions of class-room illumination. A hard-pressed or calendered paper should be used, as a soft paper speedily becomes dirty. The extra cost of good paper is, in part at least, compensated by increased durability. The print of one side must not show through from the other, and the printing must not affect the evenness of the surface of the other side. These rules also apply to illustrations, which afford a good test of the opacity of the paper. Books are occasionally bound and pressed before the ink is dried, and a faint impression of the opposite sheets causes a haze. Copies with this defect should be rejected.

4. **Illustrations** include (1) pictures for young readers, (2) diagrams and sketches, and (3) photographic reproductions involving considerable elaboration of detail. For (1) it is important to recollect that children are only confused by elaborate or complex pictures. Bold, firm treatment of a few objects is appropriate alike to their visual powers and to their understanding. From this point of view line blocks from pen-and-ink drawings are preferable to half-tone blocks from photographs or from wash-drawings. The pictures should be of a good size, and the printed text should not extend in narrow lines at the side. In the case of (2) diagrams, it is important that the lettering should not be too small to be easily read. (3) For the older scholars it is sometimes necessary to provide illustrations exhibiting details with the precision most readily obtainable by photography. For the sake of obtaining effective illustrations of this kind, use is frequently made of highly glazed paper. Whenever this is done it is important that such paper should be used for illustrations only, and not for the text. By the use of recent methods it is possible to secure half-tone prints with good rendering of detail on matt paper.

5. **Ink.**—The ink should be a good black. The use of coloured inks is strongly to be deprecated, especially the use of more than one colour on a page.

6. **Mode of printing.**—Ordinary text should not be printed in double columns. Types should be in true alignment along the base line. Hand-set type is greatly to be preferred to the best machine-work of the present day; indeed, much of the improvement at which this report aims will be lost if printing of the standard of hand-set type be not insisted upon. The practice of printing from stereos produces quite satisfactory results, provided that the stereo is carefully made from unworn type. A slight thickening of all the lines results from stereotyping, but this in no way detracts from legibility.

7. **Character of type.**²—The type should be clean-cut, well-defined, and broad in the face. Condensed or compressed type should not be used, as breadth is even more important than height. The contrast between the finer and the heavier strokes should not be great, for hair-strokes are difficult to see. On the

other hand, a very heavy-faced type suffers in legibility through diminution of the white interspaces, as for example when the space in the upper half of the **e** is reduced to a white dot. In an ideal type the whites and blacks are well balanced in each letter, and it is easy to discriminate between **e**, **c**, and **o**, between **i** and **l**, and between **h** and **k**; and to recognise **m**, **nn**, **nu**, **nv**, **w**, **in**. The general form of the letters should be broad and square rather than elongated vertically; thus the letter **o** should approach the circular shape. Legibility is not increased by adding to the height of a letter without adding to its width. There should be a lateral shoulder on every type so that each letter is distinct. Long serifs should be avoided, and any extension sideways which forms or suggests a continuous line along the top or bottom is detrimental.

The upper half of a word or letter is usually more important for perception than is the lower half, because the upper half of most letters has a more distinctive shape than the lower. In some recent type-faces the designers have accordingly shortened the letters below the line, and lengthened those above—thus the **p** is shortened and the **h** lengthened; at the same time the upper parts of the **r** have been raised. It is too early to pass judgment on the results, and more experiment is desirable. It is possible that legibility would be increased by giving more distinctive character to the lower half of a larger proportion of letters.

With reference to the question of "modern-face" versus "old-face" design for type, the Committee is not prepared to advise the use of either to the exclusion of the other, good and bad varieties of both styles being at present in use. It is claimed for the "modern face" that the letters are more legible, and it may be conceded that failure to provide the minimum height of the short letters is more frequent in "old face." Hence the letters of the "modern face" are usually more legible in the case of sizes below twelve-point. The advocates of the "old face" contend that the "modern-face" letters remain isolated, whereas the letters of the "old face" flow more naturally into words; thus the form of the word and its meaning are apprehended smoothly. It is also claimed that the basic design of the "old face" is of higher æsthetic merit. The Committee insists on the importance of the minimum height and breadth for the small letters (*vide* columns 2 and 3 of the table), and if this be secured, leaves the decision between the "modern face" and "old face" to individual judgment helped by the criteria provided in various paragraphs of this report.

Italics, being less easy to read than ordinary type of the same size, should be used sparingly.

8. **The size of type-faces and their vertical and horizontal separation.**—The size of the type-face is the most important factor in the influence of books upon vision. Legibility depends mainly on the height and breadth of the short letters, for the larger the type the further from the eyes can it be read with ease, and it is of the first importance to induce the young reader to keep a sufficient distance between eyes and book. Children under seven years old should

² For explanation of technical terms, see appendix.

be able to lean back in their seats and read from the book propped up on the far side of the desk. (As a rule books should not be too large or heavy to be held in the hand.) The appended typographical table shows the minimum requirements, in the opinion of the Committee, for the various ages given; the dimensions being given in a form which can be understood and utilised by readers unacquainted with the technical terms used by printers.

Typographical Table.

Age of Reader	Minimum height of face of short letters	Minimum length of alphabet of small letters	Minimum interlin-ar space	Maximum no. of lines per vertical 100 mm. or 4 ins.	Maximum length or measure of line
Under 7 yrs.	3'5 mm.	96 mm. or 272 pt.	5 mm. or 14 pt.	12	—
7 to 8 yrs.	2'5 mm.	72 mm. or 204 pt.	3'6 mm. or 10 pt.	16	100 mm. or 4 in.
8 to 9 yrs.	2.0 mm.	55 mm. or 156 pt.	2 mm. or 6 pt.	20.	93 mm. or 3 3/8 in.
9 to 12 yrs.	1'8 mm.	50 mm. or 143 pt.	2 mm. or 6 pt.	22	93 mm. or 3 3/8 in.
Above 12 yrs.	1'58 mm. or 1 1/8 inch	48 mm. or 137 pt.	1'8 mm. or 5 pt.	24	93 mm. or 3 3/8 in.

1 inch = 25'4 mm. 1 point = 1/24 inch = 0'353 mm.

Specimens of printed matter conforming with the above table are appended.

The sizes and spacing of the type suggested for age eight to nine years may be adopted for older readers, including practised adults.

The column giving the minimum length of the alphabet of the small letters (*i.e.*, not capitals) affords a measure of the breadth of the types. Strictly speaking, this cannot be measured by the reader of a book. A sufficiently good estimate can be made when it is recollected that there are twenty-six letters in the alphabet, and accordingly a word of thirteen letters should not fall short, to a material extent, of half the lengths stated in the third column. Thus the word "typographical" should measure not less than 25 mm. in type adopted for readers under twelve. (This may be tested in the examples given at the end.) A rough rule may be given thus: The number of letters per running inch or 25 mm. should not on the average exceed—

6 or 7 letters for readers under	7 years.
8 or 9 "	from 7 to 8 "
11 or 12 "	" 8 to 9 "
13 "	" 9 to 12 "
13 or 14 "	above 12 "

By "interlinear space" is meant the vertical distance between the bottom of a short letter and the top of a short letter in the next line below. This space between the lines should vary in proportion to the size of the type. Too little space is a source of fatigue in reading, for it involves difficulty in passing from the end of a line to the beginning of the line below. Very wide space, on the other hand, has no advantage as regards legibility, and involves waste of paper and undesirable increase in the size of the book. Columns 4 and 5 of the table indicate a suitable proportion.

9. **The length of the line** also is a matter of importance. Other things being equal, the longer the line the greater the excursions of the eyes and the

greater the difficulty in passing from one line to the next. Very short lines, on the other hand, demand too frequent a change of direction in the movement of the eyes. The use of lines longer than the maxima given in the last column of the table is sure to cause fatigue to a considerable proportion of readers.

Approximate uniformity in length is desirable; but not absolute uniformity. It is doubtful whether the power of fairly rapid intelligent reading can be attained without the *unconscious* performance of the swing from near the end of each line to near the beginning of the next. This swing may be compared with the motion of an oarsman's body between the strokes. A slight indentation in the lines helps the reader; but a large one hinders the acquisition of a good habit of swing. Children of eight years old should not have their reading confined to very short paragraphs, as the habit of swing has been found well established in good readers of between nine and eleven years of age. In other words, these readers made the necessary eye-movements without conscious effort and with great regularity.

Unusual separation of letters should be avoided. For beginners, lines should not end in the middle of a word; the whole word should be carried to the next line and not be hyphenated. The admission in the table of a four-inch line for the large type is a concession intended to meet the difficulty of securing an even set of the letters in a line of shorter measure.

Good margins are restful to the eye, and are well worth their slight cost.

10. **Particular Requirements of Special Subjects: Bibles, Prayer-books, and Hymn-books.**—It is to be regretted that these books are so frequently printed in type which is injurious on account of its small size. It is desirable that the standard given in the table should not be lowered with respect to these important books, which are frequently used under poor conditions as regards illumination.

11. **Books for Evening Work.**—The unfavourable conditions resulting from artificial illumination and fatigue of the learners make it highly desirable that the rules "from age twelve" should be maintained for books to be used in all evening classes, or for home-work, even for adults.

12. **Exercises, Sets of Examples, and Questions.**—These are the most important parts of a school-book, so far as influence upon vision is concerned, and the rules for the printing of them should on no account be less stringent than those applied to the rest of the book. The same rules should be applied to test-cards. The use of hektographing or other multiplying processes is increasing in schools. Care should be taken to secure clear and legible copies.

13. **The Types for Mathematical Symbols** should correspond with, or be larger than, the sizes of type recommended for the various ages. It is important that the smaller symbols should not be too fine, and it is advisable to employ the "heavy" type for fractions which is described by typesetters as "heavy fractions." For children under twelve years no fractions should be employed less than 3'5 mm. in height of face; thus in 3/4 the distance from the top of the 3 to the bottom of the 4 should not be less than 3'5 mm.

For pupils above twelve the minimum face height for fractions should be 3 mm. If heavy fractions be not used, these heights should be increased to 4 and 3½ mm. respectively.

14. **Squared Paper.**—Use of squared paper should be restricted to work for which it is really required. If this be done, and paper with rulings not less than one-tenth inch apart be used, there will be little danger to vision. The use of millimetre paper should be restricted to students over fourteen, and be only used by them in a good light—on exceptional occasions.

15. **Atlases.**—It does not appear possible to avoid some use in atlases of type which is below the desirable standard of size, and the care which should be exercised by teachers in regard to the children's eyesight needs to be specially emphasised in this connection. Their use should be avoided when the illumination is below normal—the less they are used for homework the better. Location by reference lines should be taught from the beginning, and children should not be allowed to hunt for a name in an undirected fashion, as they may thus have to read fifty names in finding the one sought. Atlases intended for use by children under nine should have no type smaller than ten-point, with minimum height of 1.6 mm. or one-sixteenth inch for the short letters. No school atlas should be printed with type smaller than eight-point, with minimum height of 1.2 mm. for the short letters. The type should be extended; italics should not be used more than is necessary, and should not have fine hair-lines. Type of display character may be used with advantage.

It is not necessary that every map should be coloured. (It has already been pointed out that colour decreases legibility.) In the case of beginners, the colour helps the appreciation of area; but for this purpose the colouring should be pale, and few names inserted. For the portrayal of relief, the practice of block-shading the contours is better than heavy black hill-shading by hachures. Maps should be duplicated where it is necessary (e.g., Switzerland) to exhibit great variation of contour together with several place-names. In general it is better to multiply maps than to put much detail into one.

If a system of inserting the names of every town of a certain population be adopted, the result is certain to be overcrowding of those portions of the maps which represent highly-populated countries. It would be better to avoid this overcrowding, even at some sacrifice of systematic uniformity. Modern methods in the teaching of geography are reducing the hunting for place-names, and thereby diminishing eye-strain. This advantage will be more general when the supply of orographical maps to public elementary schools is increased. The reading of Ordnance Survey sheets by the older pupils is not objected to, provided they are used in good daylight.

16. **Music.**—For the tonic sol-fa notation the minimum height of the short letters should be (a) for music, 2 mm.; (b) for words, 1.5 mm. Staff music is often produced by lithography, in which all gradations of size and shape are possible. Care in printing is needed, so as to secure well-defined stave-lines and

tails. Advantage should be taken of the elasticity in the length assigned to different bars in the lithographed music, so as to avoid compression of complicated passages. For beginners music of the size of the "Giant Note" is recommended. For others, the stave-lines should not be less than 1.75 mm. apart. The ruled paper for music-writing should have lines not less than 1 mm. apart.

17. **Greek.**—Greek type is troublesome to beginners by reason of its unfamiliarity and of the difficulty of synthetising accents and letters into word-wholes. The correct Porson type has a line of uniform thickness. Such type affords easy discrimination of individual letters, and is legible in mathematical formulæ, even when small sizes are used. For reading, it is recommended that no type smaller than twelve-point be used for beginners, or eleven-point for experienced readers. The variety of Greek type which employs fine hair-lines should be entirely abandoned. Uncial Greek may be recommended as being easy to read.

18. **German.**—The older styles of German type are less easily legible partly on account of the ill-placed hair-lines at the top of the letters. Recent forms of the black letter used in German books are improved in this respect; but since Roman type is being used largely even for literary works in Germany, the use in our schools of the less legible German types may be reduced with some gain to the security of eyesight.

Conclusion.

The Committee observes in conclusion that:—

(1) The existence of a very serious amount of visual defect among children of school age is established as a result of official inspection. Some portion of this defect is preventable by greater care in the selection of books.

(2) It is desirable that a standard of book-production should be established, and that the publication of books below standard should cease.

(3) It appears possible that the adoption by local education authorities of a common standard would render unprofitable the publication of books which failed to reach such standard.

(4) It is hoped that this report may assist the responsible authorities in the work of determining the standard of book-production requisite for the protection of the eyesight of children so far as it is influenced by the books which the children are compelled to read in school.

APPENDIX.

Note on Technical Terms used in this Report.

Type-body, type-face, lateral shoulder, large-face.—The letters are cast on a "type-body"; the part of the type which actually leaves its impress is the "face." When the face is nearly as large as the body will carry, the type is "large-face." The space on the upper surface of the body on each side of the face is the lateral "shoulder." All one reads is the impress of the faces of the types.

Serif.—A type in which each letter had only its bare necessary features would be "without serif," the serifs being the terminals of the letters. If of proper

design, the serifs guide the eye from letter to letter and give a balanced effect. In some styles the serifs take the form of purposeless ornament, which is undesirable in books which are intended for continuous reading.

In *condensed* or *compressed* type the bodies are narrow, so that the letters are narrow and close together. Column 3 of the typographical table excludes such type.

Old face and *modern face* refer to styles of type.

Heavy type, *heavy fractions* refer to type of which the lines are thick.

Point is a unit of measurement = $\frac{1}{72}$ of an inch. Thus an eighteen-point type has a body one-quarter inch high. The face may be of any size smaller than the body.

Solid and *leaded*.—If the types of consecutive lines are set with no vertical interval between the bodies, the type is "solid." When there is a vertical interval, say, of a thirty-sixth of an inch, the type is "two-point leaded." A large-face type of ten-point body with two-point leading will produce about the same vertical space between the short letters as a small-face type of twelve-point body printed solid.

An *indentation* occurs in a line where the print does not extend to the same length as in neighbouring lines.

In a supplement to the Report a number of specimens are printed as satisfactory examples of existing types which conform with the dimensional rules proposed by the Committee. We give one example of the size of type for each age, with an indication of its relation to the specifications in the typographical table.

UNDER SEVEN.
24 Point. Equal to
the minimum size.

SEVEN TO EIGHT. 18 Pt.
Larger than the minimum.

EIGHT TO NINE. 12 Point. Slightly
larger than the smallest suitable type.

NINE TO TWELVE. 12 Point. Equal
to the minimum suitable size of type.

ABOVE TWELVE. 11 Point. The smallest
suitable size of type.

Marlowe's Faustus. Edited by W. Modlen. 88 pp. (Macmillan.) 1s. 6d.—This play has been long waiting for a school edition. We hope Mr. Modlen will follow on with more Marlowe. We have a sufficient introduction and some very clear notes. The book is one of the now large collection of classics in the familiar red cloth.

THE PRESENT POSITION OF MATHEMATICAL TEACHING.¹

(1) By WILLIAM P. MILNE, M.A., D.Sc.

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, seeing that 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 practically all 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 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 general body of the more advanced pupils than is at present possible. The published views of such distinguished teachers as Tait, Chrystal, and Hobson support this hypothesis.

If we consider the teaching of the higher mathematics given in the secondary schools to scholarship candidates, we see that the following difficulties at once present themselves and militate against efficient teaching:—

(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 could be best omitted and what could 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.

(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, &c., have never been carried out.

That secondary-school teachers are beginning to feel some active steps should be taken to remedy these defects is shown by the recent publication of "Mathematical Monographs," a book 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. Furthermore, there is a very suggestive paper in THE SCHOOL

¹ Abstracts of papers read before the Educational Science Section of the British Association at Dundee, September, 1912.

WORLD of last June by Dr. Charles Davison, of Birmingham, on Mathematical Essays historically and pedagogically treated.

In conclusion, how to get and keep the pupils' interest amidst the discouraging difficulties of the more advanced mathematics, and how the master shall keep his own knowledge fresh and thoroughly up to date, constitute a fertile, almost untraversed, field of pedagogic inquiry.

(2) By P. PINKERTON, D.Sc.

We are beginning to learn that current ideas regarding the teaching of mathematics are very like current ideas in other provinces, and that the movement towards reform is an index of the spirit of the times. It is fairly safe to say that mathematics used to be regarded by many as consisting of a body of sound doctrines logically articulated and appealing only to minds specially fitted to receive them. Literature, on the other hand, was supposed to be more human, more adapted to the tastes and capacities of the many. One of the results of looking closely into these matters, without subservience to tradition, is the conclusion that a genuine appreciation of language and literature is just as rare as a genuine appreciation of mathematics, and that the aims and ends of teaching are in both cases very much alike.

A good though simple poem such as Wordsworth's "Daffodils" serves to illustrate the various stages in the growth of ideas just as much as a good piece of elementary mathematics. The first verse describes a scene, the second the beauty of the scene; in the third the mind is attracted and interested; and in the fourth the scene is treasured "in the mind's eye." The equation $3x + 4y = 7$ displays a scene of related x 's and y 's; the beauty of the scene is revealed when these are framed with reference to axes; the mind becomes interested in the linear arrangement, and there follows finally the demonstration of the remarkable equivalence of line and equation.

Comparison with the mere proof that a linear equation represents a straight line shows that current ideas regarding reform are on sound lines. The danger used to lie in teaching formal conclusions with little or no account of their growth. It would be small gain if we fell into the opposite danger of teaching to look without observing or to observe without inquiring. In trigonometry, for instance, the formula $a = 2R \sin A$ and its proof represent the last stage; the preceding stage is the observation that we could draw and measure a chord of a circle if we knew the diameter of the circle and the angle subtended by the chord at the circumference; and this is preceded by beholding the beautiful scene of equal angles in the same segment of a circle. In descriptive geometry we must see the line given by its plan and elevation or the plane by its traces. Not till it is noted that from the traces of a plane a joiner could mechanically construct the scene, that the plane is there, can there be any observation of such a thing as the real angle between its traces, far less any inquiry into its determination, or any sound understanding of what a text-book conveys by the heading, "Given the traces of a plane, to find the real angle between the traces," and the

corresponding construction. The preliminary study of the calculus requires the survey of scenes where $\delta y/\delta x$ and $\Sigma y dx$ are matters of observation and interest before the notions of a limit and dy/dx and $\int y dx$ are reached. Otherwise we may know about dy/dx and $\int y dx$, but we do not know them, at any rate we do not know them in the sound sense of knowing the spirit through the letter.

HISTORY AND CURRENT EVENTS.

THE Panama Canal is approaching completion. As four hundred years of exploration has failed to find any practical way of sailing from the Atlantic into the Pacific, except the long and dangerous route by Cape Horn, man has at last made such a way. What would Bilbao or Drake have thought of it? It was impossible for them, because, as has been found in recent years, it could not be made not only before the power was acquired to blast rocks, but also before sanitary science had been able to overcome the dangers of work in the tropics. And now so world-wide are our interests, so small has the earth become owing to ease of communication, that the prospective opening of this canal in America is expected to affect the rates which the Suez Canal must charge. The directors of that company have recently reduced their rates, and there are "some of the officials" who "foresee a rate war between the two canals, which may involve all the maritime nations of the world."

OUR Scottish friends will, we hope, excuse us if after contemplating the rivalries of world-communications we express a feeling of descending to the little when we remark on the "rally" of the clan Maclean which took place in August last. Sir Fitzroy Maclean is described as the twenty-sixth chief of the clan, so that, on the lowest computation for a generation, that will take their history back between six and seven hundred years. Into what a different world from that of the fourteenth century has the clan survived, and how different must have been the return of the chief to Duart Castle in the Isle of Mull. Centuries after that date, "it was a far cry to Loch Awe," and now the railway runs through the valley. But race and religion, which bound the peoples together in olden times, die but slowly if at all, and the Macleans have foregathered from all parts of the United Kingdom, Canada, the United States, and Germany to celebrate the return of their chief to his ancestral home.

Two hundred and fifty years ago the Parliament of England passed the last Act of Uniformity, and Congregationalists especially have this year been celebrating the "ejectment" which thereupon followed of some two thousand clergymen from livings in the Church of England. Our readers will find in the March number of THE SCHOOL WORLD an article which will help them to understand the significance in English history of this event. We therefore confine ourselves to asking the question: What was it that began to be in England in the year 1660? It was not nonconformity. Archbishop Laud had had more

than enough of that when he found clergy who did not read the services in the Book of Common Prayer, to say nothing of his Elizabethan predecessors. It was not Dissent, for Elizabeth had had trouble with Separatists, and the "Mayflower" story shows that she had not exterminated the "evil." Did it, in fact, so "mark an epoch" in the eyes of contemporaries as it does to us, looking back over the two centuries and a half? That the tables might again be turned was a possibility which inspired seventeenth-century fear of a "standing army," and the Tory legislation of Anne's reign.

FRANCIS JOSEPH OF AUSTRIA has now out-reigned Victoria of England, and the papers, in commenting on the matter, have referred to a sovereign quite unknown to English general readers, Charles Theodore, of the Wittelsbach family, who reigned over Sulzbach from 1733, over the Palatinate from 1742, and from 1777 over Bavaria as well. (His accession to this last dignity was the occasion of the last diplomatic activity of Frederick the Great of Prussia.) He lived until 1799, and thus reigned over at least Sulzbach for sixty-six years, but he began as a minor, and did not govern as long as Francis Joseph has done. The only other rival in length of reign is better known to English readers. Louis XIV. of France came to the throne in 1643, and, having out-lived his eldest son and that son's eldest son, was succeeded in 1715 by his great-grandson, Louis XV. But both these kings were little boys at the date of their accession, and though their united reigns cover almost a hundred and sixty years, Louis XIV. cannot be said to have governed until the death of Mazarin in 1661. Thus Francis Joseph has out-governed all European sovereigns, his predecessors.

ITEMS OF INTEREST.

GENERAL.

In connection with the article upon the use of the kinematograph in school which appears elsewhere in this issue, attention may be directed to the International Kinematograph Exhibition and Conference, which will be held next year at the Royal Horticultural Hall, Vincent Square, Westminster, from February 7th until February 15th inclusive, Sunday being excepted. An opportunity will be offered of studying the educational possibilities of the kinematograph at first hand, and, if these are admitted, of attacking the problem of their realisation in individual cases. At the present time a school of more than one hundred pupils without a lantern must be almost as rare as a school without a blackboard. If for lantern we read kinematograph, we have an ideal which will be commonplace in a very few years. The first question for school authorities anxious to introduce this method of instruction is how to adapt an existing electric installation for the requirements of the machine. A second but less crucial difficulty is how to find or train an efficient operator. A section will be concerned with each of these points. There will be educational, scientific, and religious sections also, under the guidance in conference of advisory com-

mittees. These contain some fifty-five headmasters and headmistresses of well-known schools and educational bodies, and include authorities as diverse in their purview as the headmasters of Eton, Clifton, and Liverpool Colleges, Leeds and Bristol Grammar Schools, Sir John Kirk of the Ragged School Union, numerous clergy and Free Church ministers, together with the secretaries of the Boys' and Church Lads' Brigades. The office of the organising secretary is at 22-24 Great Portland Street, London, W.

LEEDS University is endeavouring to meet the need of students who desire systematic instruction in the study of social problems and of social administration. It has established courses of lectures, tutorial classes, and practical work in social organisation and public service. The course will extend over one year, and began at the end of last month. A University diploma will be awarded to candidates who complete the course. The diploma, which will be open to men and women, is designed to be of service to those who desire to become effective social workers, whether in a paid or voluntary capacity. The course will offer training for those who are preparing themselves for administrative work in connection with the public health and education authorities, the Labour Exchanges, the National Insurance Commission, charity organisation societies, guilds of help, university settlements, and so on. The course of instruction is somewhat on the lines which have been tried successfully at the Universities of Glasgow, Birmingham, and Liverpool. A prospectus of the course can be obtained on application to the secretary, the University, Leeds.

THE Calendar of the Municipal School of Technology, Manchester, is an elaborate volume of more than 500 pages, and manifests the completeness with which the authorities in Cottonopolis cater for the serious student. There are University courses in mechanical, electrical, and municipal and sanitary engineering, in architecture, in seven different branches of applied chemistry, in textile manufacture, &c. Apprentices, library assistants, and printers are offered special day courses, and most of these courses are duplicated for the benefit of evening students.

EVENING education in Bradford, Yorks, is organised into thirty-three ordinary evening schools, three branch technical and commercial schools, and a technical college, a school of art, and a commercial college. The student of commercial subjects, for example, attends for three years at the ordinary evening school, two further years at the branch commercial school, and later years at the commercial college. The work is arranged in systematic progressive courses, and provides instruction for the student for about six hours per week throughout the whole period.

It has been decided to hold, in August, 1913, a Yorkshire Summer School of Geography. The county of York offers peculiar advantages for the study of the subject, and it is proposed that centres of teaching and practical work should be formed in the Whitby district, at or near Settle, and in the industrial districts of the West Riding. Field work and practical

instruction will be an important feature of the school, in the arrangement of which the two Yorkshire Universities (Leeds and Sheffield) and Armstrong College, Newcastle-on-Tyne (University of Durham), are co-operating with the chief county and county borough authorities of Yorkshire. A detailed programme will be issued later in the year.

"WE have a great opportunity. For the first time in the history of English education the teaching profession has been challenged by the State to become a self-conscious unity, to recognise that, for all the variety of occupations and interests and qualifications that it includes, its duty and its dignity are essentially one. Even as in the history of every great nation there comes a moment when particular interests, aspirations and jealousies are absorbed in the general loyalty to the common weal, and the nation becomes conscious of itself, so in our own province of the national life it is not too much to hope that by wise counsel and persistent goodwill a condition of true unity may be reached which will enable English education to take its right place as the highest factor in English greatness and English civilisation." On this high note Mr. R. F. Cholmeley concludes a leading article on the teachers' register in the September number of *The Educational Times*.

"SCHOOLBOYS as Wage-earners" is the title of a short study which appears in *The Child* for September, by the Assistant Medical Officer of the Surrey Education Committee, of the effects of work upon 731 boys aged thirteen years. The boys who did odd jobs in large houses, those who worked at miscellaneous tasks, such as gardening, or at barbers' shops, and those who worked only on Saturday, or Sunday, did not seem to be much affected by their occupation, but the others, chiefly paper boys, errand boys, and milk boys, whose occupation caused them to get up very early in the morning, to carry heavy weights and to scamp their meals, were all less in height and weight than the average of the non-workers, and in these cases the evil effects were greater the longer the period the boy had been employed. The general conclusion reached by the writer is that, provided the hours of employment be curtailed, penalties be attached to employment before or after certain hours, and restrictions be laid upon the weights to be carried, out-of-school employment need not necessarily be deleterious. On the other hand, it is pointed out that the average wage of these boys amounts to merely 2s. 3d. per week, and that so small a sum is rarely necessary as an addition to the household exchequer, and is usually wasted.

The Times Educational Supplement for September contains an article by the official guide at the British Museum, in which he describes the use which has been made of his services by various educational institutions. He has conducted parties from the London elementary schools, from the Manchester Grammar School, from King's College, London, and, on Saturday afternoons, from factories, such as the Royal Ordnance Factory, and business firms. The general

public seems to prefer the mummies, the prehistoric European antiquities, and the Assyrian collection; but the schools send parties to study the collections illustrating the Stone, Bronze, and Iron ages, and the Roman-British or Anglo-Saxon periods, or Magna Carta and the historic documents. Probably this article will result in a greater demand than ever for the services of the official guide.

THE same issue contains a study in comparative values, entitled "Modern Languages in Education," by Mr. Stanley Leathes, the "arch-examiner," in which there is a plea for the retention in schools of a small select class of "Grecians," *i.e.*, boys who have shown a special aptitude for a classical curriculum. At the same time the writer admits that even in the good old days of the classics there were many boys who could, or would, not profit by a classical training, and who therefore failed to reap much reward from their school life. For such boys it is suggested that modern foreign languages provide some of the advantages which accrue from the study of the classics. Even if a boy be dull at languages it is suggested that he should be kept at French, so that he may have had some linguistic training. The parent who desires that his boy should learn French and German is exhorted to see that he provides for his boy the opportunity to commence his studies of these tongues before he is ten, and, possibly, before he is eight.

The English Review for September contains an outspoken criticism of the public-school system based upon personal experience; the writer deliberately "rotted" at his school work, but was noted as a cricketer; he failed at business, was sent to a German university, and attributes his later success in life to the zest for knowledge and work which he acquired there. Much blame is laid upon the conservatism of the system and the lack of expert supervision and control, and the conclusion is reached that "it is precisely in what one may call this moral training that our schools fail dismally and utterly; fail because the positive things that a boy learns there, in the absence of precept and guidance, are class arrogance and littleness and the lack of all motive for work or responsibility."

THE Calendar of Birkbeck College, London, shows, both by the successes of the students at the examinations of the University of London, and by the lists of classes of university rank, how great a need there still is for the external examinations of the University as a means whereby the student who has developed most during his after-school life, or has earned by his own endeavour the money wherewith to pay fees, can attain a university degree. The evening work of the College is at present extensive in scope, so that the resources of the present building are taxed to the uttermost, and there is a pressing need for new and more spacious accommodation.

THE Cape of Good Hope *Education Gazette* for August 22nd contains the regulations which allow teachers to requisition educational journals, and we are gratified to note that THE SCHOOL WORLD is one of the journals towards the subscription for which the

Department makes a grant of one-half the amount. We read: "To those who are truly interested in their profession nothing is more helpful and stimulative than a good educational magazine, for surely if a man who has a special hobby (*e.g.* gardening) subscribes to a journal which concerns itself with his recreation, a teacher anxious to do the best for himself and his pupils will make a point of improving his knowledge of method and practice in his subjects by keeping in close touch with new aids and ideas in school work." The same issue contains references to teachers' courses in geography, in which definite instruction was given in practical, physical, and regional geography. The course in practical geography aroused the enthusiasm and industry of the students in a marked degree.

SCOTTISH.

THE proceedings at the Education Section of the British Association were enlivened by a characteristic utterance by Sir James Donaldson, Principal of St. Andrew's University. Dealing with the spelling of the English language, he declared himself a believer in phonetic spelling, and thought that if we only reformed our spelling English would soon become the universal language. He blamed the printers for perpetuating an arbitrary system which had worried children for many generations. The learned principal was on more doubtful ground when he suggested that in the meantime everybody should be allowed to spell as he liked, just as Shakespeare did. Sir James also indulged in a full-blooded attack on the Education Department, which is the Aunt Sally at the present moment of all who speak on education. The state of education in Scotland at the present moment was, he said, the object of great anxiety to all who had an interest in it. The policy of the Department had been to carry out a system borrowed from Germany, but which was destitute of the safeguards which would secure a thoroughly sound education. The Scotch Education Department had lost sight of the great principle that a good education could be given only by good teachers, and that the first duty of those who controlled educational affairs was to see that teachers were thoroughly well educated.

DURING recent months an increasing volume of criticism has been directed against the educational conditions in the rural schools. Generally speaking, the burden of the complaint is that owing to the centralising tendencies of the Education Department higher education has ceased to exist in rural schools that in former days did much advanced work, and sent many pupils direct to the universities. All the school boards in Orkney and Shetland addressed a united petition to the Secretary for Scotland praying him to relax the existing regulations in order to allow of a return to the practice of former times. This they asked for on two grounds. In the first place, there were not enough bursaries to go round the pupils who were desirous of doing higher work, and in no instances were the sums granted sufficient to maintain pupils in lodgings away from home. In the second place, they were strongly of opinion that the removal of pupils from their home surroundings at the early

age of twelve was surrounded with manifest dangers and temptations. Parents were naturally unwilling to subject their children to these, and would prefer to receive a measure of secondary education in their own schools, even though such education should fall short of that given in the central schools. The Secretary for Scotland, in his reply, passed over the main arguments placed before him, and confined his reply to pointing out that by the regulations of the Department school boards could give what education they pleased in each and all of their schools. This reply ignores the well-known facts of the case. Whatever the regulations of the Department, there is no doubt that inspectors have set their face as a flint against any semblance of higher education in rural schools.

PROF. HARROWER, Aberdeen University, has been investigating the same question from a different point of view. He issued to a large number of typical rural schools a long series of questions in regard to the nature and extent of the higher instruction given in past years, the number of distinguished students educated in whole or in part in these schools, and the actual conditions to-day. The replies which have been received constitute, if their accuracy can be depended on, a formidable indictment of the educational policy in rural districts. Higher education has been killed off in the interests of central schools, and the benefits of such education are now restricted, in certain districts at least, to the children of well-to-do parents. The poor must receive their education near their own homes or go without it altogether. That is the big fact that the Department has hitherto failed to recognise, but the rising tide of public opinion will insist on some steps being taken to give equality of opportunity to the rural dwellers, even although thereby the beautiful symmetry of the present system is impaired.

THE School Board of Glasgow has become so dissatisfied with the curriculum required by the Education Department for junior students that they have resolved to discontinue the system altogether. In future, all candidates for the teaching profession will be required to take the ordinary course of instruction in a secondary school, and qualify for entrance to the training college by obtaining the recognised leaving certificate of the secondary school. The existing regulations have been severely criticised in these columns during recent months, but this action of the leading school board in the country directs attention to the matter in the most striking fashion. The Department can scarcely allow its regulations and its system of training to be thus discredited without making some reply. That reply should take the form of a modification of its regulations, so as to bring the curriculum of junior students into line with that of the ordinary secondary pupil.

THE late Mr. Robert Marshall, Glasgow, by special deed of trust, has directed his trustees to pay over to Glasgow University Court the proceeds of his estates when sold for the purpose of endowing or assisting to endow a chair of modern languages in the University. The nominal value of the estate is between £600 and £800. There are at present lectureships in the University in French, German, and Italian, and the au-

thorities have already some funds in hand to be devoted to the foundation of chairs in French and German. The present bequest should go a long way towards establishing one or other at an early date.

IRISH.

THE published summary of the results of the examinations held by the Board of Intermediate Education last June is as follows:—

Boys.					
Grade	Senior	Middle	Junior	Preparatory	Total
Number Examined...	744	1,417	3,552	2,563	8,276
Number who passed—					
With Honours ...	158	285	640	—	1,083
Without Honours	346	546	1,548	1,244	3,684
Total ...	504	831	2,188	1,244	4,767
Proportion per cent. of those examined who passed ...	67.7	58.6	61.6	48.5	57.6
Girls.					
Number Examined...	400	772	1,999	1,134	4,305
Number who passed—					
With Honours ...	83	156	300	—	539
Without Honours	189	351	678	491	1,709
Total ...	272	507	978	491	2,248
Proportion per cent. of those examined who passed ...	68.0	65.7	48.9	43.3	52.2

The proportion per cent. for boys is somewhat better this year than last; that for girls is lower, especially in the preparatory grade, as the following figures for last year will show:—

Grade	Senior	Middle	Junior	Preparatory	Total
Boys ...	68.1	55.4	49.6	54.5	53.9
Girls ...	67.9	60.2	44.6	62.5	55.2

The number examined was this year higher than last year, the figures for last year being as follows:—

Grade	Senior	Middle	Junior	Preparatory	Total
Boys ...	602	1,677	3,005	2,679	7,963
Girls ...	318	935	1,667	1,222	4,142

Mr. Birrell has issued his draft scheme for the distribution of the new grant of £40,000. It is as follows:

I. Maximum grant to be £40,000.

II. Money to be distributed by way of grants to schools which comply with the conditions set out below in proportion to the amount received by the said schools under the Intermediate Education Acts in the preceding year. The maximum grant payable to any school in any year to be fixed by regulations to be approved by the Lord Lieutenant and the Treasury.

The conditions referred to are:—

(1) Each boys' school to have not less than one registered lay assistant teacher, at a minimum salary of £120 a year, for each 40 pupils on the roll. Each girls' school to have not less than one lay assistant teacher, at a minimum salary of £80 a year, for each 40 pupils on the roll.

(2) All such lay assistants shall be entitled to six months' notice or six months' salary, in case of dismissal—except on account of grave misconduct.

(3) A register of secondary-school teachers to be set up forthwith on a scheme to be drawn up by a committee consisting of representatives of the Intermediate Board and of the universities in Ireland under a scheme to be settled by the Lord Lieutenant.

It is difficult to express in words the enormous advance in secondary education made possible by this scheme. Irish teachers can see here a charter which grants them professional recognition on an accredited register, a minimum salary, and reasonable security of tenure. There are details to be arranged and some points which require elucidation, but the main outlines are clear, and will be gladly welcomed. On the other hand, there is no mention of a pension scheme, and it is to be hoped that clerical teachers, although not included in the scheme for the increased grant, will yet find a place on the promised register.

A DRAFT scheme has also been issued for scholarships tenable at intermediate schools by boys and girls from primary schools to be held in connection with scholarships at Irish universities. The candidates are to be under thirteen, and their parents must be in need of financial assistance to educate them in a secondary school and university. There will be twenty-five scholarships given every year, tenable at intermediate day schools, and fifty tenable at boarding schools. The former will be of the value of £20 per annum (£10 for school fees, £10 for clothes, books, &c.), the latter £50 per annum (£35 for school fees, including extras, and £15 for clothes, books, &c.). They will be awarded for three years, subject to the annual report of the headmaster and inspector of the school as to the fitness of the scholar to retain his scholarship and to proceed to a university. Each scholar will be required to pass with honours in the junior grade of the Intermediate Board before the age of sixteen. The scholarships will be divided among the counties and county boroughs on condition that they undertake to provide scholarships of the value of £60 a year tenable for four years at any Irish university selected by the scholar, for each of the scholars under this scheme. These university scholarships are to be awarded without further competition to the scholars from primary schools under this scheme on condition of the scholar passing the matriculation examination of the university to which he proceeds within twelve months of his leaving the intermediate school.

At the Annual Conference of the Association of Manual Training and Technical Teachers of Ireland held in Dublin at the end of August, a paper by the Rev. Brother Hennessy, assistant Superior General of the Christian Brothers, was read advocating the teaching of manual instruction in all intermediate schools, and attacking the Intermediate Board for not sanctioning it. Dr. Starkie, the chairman of the Board, in reply, stated that he and all the other members of the Board were quite in favour of manual instruction in secondary schools, but their hands were tied by Act of Parliament. He went on to say that Mr. Birrell had promised in the next session of Parliament the very first thing he would do, even before the Home Rule Bill was considered, would be to bring in a single-clause Bill to abolish the intermediate examinations. Schools would then be free to draw up their own programmes, and would be able to introduce as much manual instruction as they liked.

WELSH.

At the University College of North Wales, Bangor, the second summer school of Latin has just been held. It was closed by a performance of children of a Latin play, "Veturia," and of an amusing Latin sketch descriptive of the stealing of Apollo's cattle by Hermes. The sketch was performed by the younger children of the Bangor schools, together with children who had come from a distance to attend the course. The performances were an interesting test of what could be done in ten days' time by the direct method. Dr. Rouse explained that the younger children at the beginning of the course knew no Latin, and in ten days had acquired sufficient for acting a sketch. He pointed out the high value of distinct and accurate pronunciation of Latin, and the need for care for sounds and quantities. The use of Latin, in acting, made clear that Latin was not English, and took away the reproach that it was dead. Dr. Arnold pointed out that the songs and plays performed had an educational purpose—the songs to secure a good enunciation and the plays to help in the realisation of ancient life. We hope to give a fuller account of the meeting next month.

THE Eisteddfod meetings at Wrexham were very successful. A record was established by the Crown and Chair being won by the same candidate, and for the first time these were both taken by an old student of one of the colleges, the University College of Wales, Aberystwyth. Mr. Lloyd George was present on one of the days, and said the Eisteddfod showed by its progress the history of education in Wales. The schools and colleges have come to the Eisteddfod. "There is nothing like it," said Mr. Lloyd George, "in any country of the world, and the schools are now entering. Yesterday a young man born at the foot of Snowdon won the crown. The tide is rising. It is the Eisteddfod which shows to you how high it has risen. It will rise still higher at the next Eisteddfod. Prizes are offered for translations from the Latin, and the boys who go through the democratic schools of Wales will win them. There is nothing like the Eisteddfod now, and before many years people from all over the world will study its history."

At the same Eisteddfod, Mr. Granville Bantock was in somewhat more critical mood than Mr. Lloyd George. In adjudicating on the chief choral competition at Wrexham, he asked: Was Welsh music advancing as was English music in some parts? The Welsh are a musical race, and Welsh music is perhaps the most interesting in Great Britain. But, Mr. Bantock remarked, if they left things as they are they would lose their individuality, and the English with their musical festivals would beat them. There was musical material in Wales, but it was not co-ordinated. He would like to see more Welsh choirs visiting England, as well as English choirs visiting Wales. There should be a Welsh National School of Music. "Wales must follow the Midlands. Thirty years ago they had a small school in Birmingham with sixpenny classes for the violin, and now they had 1,100 students and one of the largest musical festivals in England, quite as large as the Eisteddfod, and an

orchestra and a large number of choirs"—all the outcome of the influence of the School of Music.

THERE is trouble at Merthyr Intermediate School. The art mistress has entered an action against the Corporation for £20, balance of salary. She left at the end of the summer term on July 26th. The Corporation offered her the proportion of the quarter's salary calculated upon the period in the quarter which she had actually served. The claimant had worked three complete terms, and claimed that she was entitled to be paid the full year's salary. The hearing was adjourned. In the meantime, a meeting of the Education Authority has been held, at which it was stated that the present arrangement between the Authority and the assistant masters and mistresses was very unsatisfactory. It was reported that the Authority had scarcely any power over them at all, and it was decided to terminate every one of the appointments with the view of putting them on a proper basis.

IN the schools of Dowlais there are children of Spanish, Italian, Russian, and Russian-Jewish parents, who are in attendance at the elementary schools. Some of these are particularly capable in acquiring the Welsh language. There is a story told of a University College professor of Welsh recently listening to a Dowlais boy reciting a Welsh poem with perfect accent, so that the professor, on being asked, had no hesitation in supposing that the boy was Welsh, though it turned out that he was a Spaniard. It is to be hoped that the Welsh boys are as ready to learn Spanish, Italian, Russian, &c., as these foreign residents are to learn Welsh.

THE Carmarthen Town Council has been considering the recommendation of the Royal Commission of Public Records to have the Welsh Records kept in the Principality, instead of at the Records Office in London. They claim that previous to the removal of documents to London, South Wales records were always kept in the ancient borough of Carmarthen.

THE NEW BOTANY.

- (1) *Types of British Vegetation*. Edited by A. G. Tansley. xx+416 pp. (Cambridge University Press.) 6s. net.
- (2) *British Plants: their Biology and Ecology*. By J. F. Bevis and H. J. Jeffery. xii+334. (Alston Rivers.) 4s. 6d. net.
- (3) *The Senior Botany*. By Dr. F. Cavers. viii+484 pp. (Clive.) 4s. 6d.
- (4) *Practical Botany*. By Dr. F. Cavers. xvi+408 pp. (Clive.) 4s. 6d.
- (5) *Intermediate Text-book of Botany*. By Ernest Evans. viii+394 pp. (Longmans.) 6s.
- (6) *Practical Botany*. By J. Y. Bergen and O. W. Caldwell. viii+545 pp. (Ginn.) 6s.
- (7) *Links with the Past in the Plant World*. By Prof. A. C. Seward. x+142 pp. (Cambridge University Press.) 1s. net.
- (8) *Botany, or the Modern Study of Plants*. By Dr. Marie Stopes. 94 pp. (Jack.) 6d. net.

WITHIN the present generation botany has changed almost beyond recognition. The old-style field botany was largely a matter of species-spotting, with occasional excursions into folk-lore. Intellectually it often ranked scarcely higher than stamp collecting, but in

little more than ten years it has developed into the important science of ecology. The question nowadays is "Why is this plant growing here?" rather than "What is its name?" Thus, along one line, the new field botany merges insensibly into the great subject of geographical distribution. Recent work on fossil plants has thrown a flood of new light upon distribution and morphology alike. Mendelism—unheard of twenty years ago—seems to promise a boundless field for the breeding of new races of plants for food and manufacture. Discoveries in vegetable physiology have pointed out the way of success in intensive culture and the like. These and other modern developments of botany—which are set out clearly and interestingly for the benefit of the lay person in Miss Stopes's little book (8)—are attracting public attention. What wonder that the practical business man is at last lending his support to botanical research? There is money in it.

There is more than money in it. The botany of to-day has shown itself without superior as a means of cultivating observation and independent reasoning power among children. Thus it is not now considered of prime importance that the botany student shall assimilate the largest possible number of facts, *qua* facts, relating to plants. He must rather learn to link up the effect to the cause at every stage of his work, and to maintain a constantly alert attitude of mind. One result does not preclude the other, however, as is shown by the work of many schools and reflected in many modern text-books.

Some idea of the enormous strides made in ecology may be gathered from the invaluable collection of essays (1) (chiefly by members of the Central Committee for the Survey and Study of British Vegetation) edited by Mr. Tansley, himself a distinguished worker in this field and a contributor to the book. Here, for the first time, the student is provided in a convenient form with a full, consistent, and authoritative account of the different types of plant community existing in the natural vegetation of these islands, in which their relations to climate and soil and to one another are traced. The book is indispensable. It is illustrated with 31 plates and 21 figures in the text.

The authors of "British Plants" (2), by consistently applying ecological principles to the needs of school botany, have produced one of the most stimulating and suggestive text-books of recent years. It does not cater for any examination syllabus, but ought to be in the hands of every teacher and senior student of botany.

Prof. Cavers's "Practical Botany" (4) is an excellent example of an up-to-date laboratory course of vegetable histology and physiology. If there be a weak feature in the book, it is that the student is too often told what result is to be expected from his experiment. Conspicuous among its many merits are the introduction of chemical tests for the most important vegetable organic bodies, and the unusually full descriptions of certain types, especially *Pellia* and *Funaria*. "Senior Botany" (3), by the same author, covers the syllabuses of the senior local examinations of the Universities of Oxford and Cambridge. Much of the material has appeared in earlier books by Prof. Cavers—already commended in *THE SCHOOL WORLD*—but the present volume contains a much fuller treatment of ecology. It is admirably adapted for its purpose.

Mr. Evans's book (5) has a wider scope, being intended for students preparing for the London University Intermediate Science and other examinations of similar standard. Though abundantly provided with instructions for practical work, it conveys the impression of being mainly a collection of facts, carefully arranged and excellently illustrated. We notice a few

unfortunate mistakes, *e.g.* the so-called hard bast of the sunflower stem is described as part of the phloëm, and the many-layered pericycle of the pine root is referred to as cortex.

It is not very clear in what sense Messrs. Bergen and Caldwell entitle their book (6) "Practical Botany," for it does not give directions for practical work. It is a valuable addition to the botanical literature of the teacher, none the less because so many of the plants and communities dealt with are American. About one-fourth of the book is given to a highly interesting account of plant-breeding, forestry, and regional distribution of plants. The diagrams and photographic illustrations are numerous and beyond praise.

Small in size, Prof. Seward's "Links with the Past" (7) is packed full of interesting information of recent discoveries—in which he himself has taken no small share—concerning the relationship of certain present-day plants to old and in many cases extinct groups. The book is written with great charm of style, so that it forms easy reading, and it is delightfully illustrated. It will enhance the reputation of the series of Cambridge Manuals.

THE "HUMAN NOTE" IN GEOGRAPHY.

(1) *World Geography*. By Ralph S. Tarr and Frank M. McMurry. 535 pp.; profusely illustrated. (New York: The Macmillan Company.) 5s. 6d. net.

(2) *The Clarendon Geography*. Vol. I. By F. D. Herbertson. 379 pp.; maps and illustrations (Clarendon Press.) 3s., or in three parts, 1s. 4d. each.

(3) *A Geography of Europe*. By T. Alford Smith. 272 pp.; maps and illustrations. (Macmillan.) 2s. 6d.

STRESS is naturally laid in the teaching of geography upon the "human note." New text-books should suggest to the teacher ways in which he may attain this end.

The "World Geography" (1), by two American authors, contains 500 quarto pages and more than one illustration per page. The main emphasis naturally lies upon the United States, the details of that Empire, and its world position. The treatment is thoroughly modern; the facts are clearly shown, and little is left to the pupil to discover for himself. Altogether this is a valuable book, containing an excellent geographical course. The "human note," *i.e.*, direct reference to man and his work, is dealt with by two methods: by a multitude of photographs showing men and their activities, and by specific references to their work as farmers, lumberers, &c. The photographs represent in many cases items of interest which do not fit the text closely, and frequently the men portrayed are natives about whom the facts to be known are sociological rather than geographical.

The first volume of "The Clarendon Geography" (2) is equally modern—from the English point of view—equally strong on causation, and develops the geographical argument in three parts. Part I. is introductory, and sets out main world principles; Parts II. and III. deal with the British Isles and with Europe. The illustrations and maps are good, but not so numerous as in (1); and in these the emphasis is not laid upon human beings, but rather upon land forms. There are numerous odd facts which are more or less interesting and more or less important to different readers. They chiefly refer to the towns and their productions, and, in company with the numerous somewhat detached tables of

statistical matter, they leave a fair amount of labour for the pupil and for the teacher in weaving together a connected, cohesive body of knowledge which is geographical. The "human note" is thus left to the teacher to emphasise and develop; suggestions to this end form the gist of two chapters, one on "Man" in general and the other on the "Human Geography of Europe."

In "Europe" (3) the "human note" is more fully developed. Based upon a study of relief and climate, dependent upon a knowledge of general geographical principles, which the pupil is expected to have previously learnt, facts are stated in the text relative to the peoples of the different countries and regions. This specific treatment of man is accompanied by many facts regarding man's work and the places where that work is carried on. Important physical features are largely treated in relation to their effect upon human activity, and statistical data are provided so that the pupil may form some quantitative notions; in this connection it might be advisable to use quantities by weight rather than quantities by value, and also to supply data showing the quantitative production of the different regions or countries.

Teachers of geography should see these notable contributions to school geography. They will assuredly wish to make some use of them.

RECENT SCHOOL BOOKS AND APPARATUS.

Modern Languages.

V. Hugo, Gavroche. Adapted and edited by Marc Ceppi. 96 pp. (Oxford: Clarendon Press.) 1s.—It is a sign of the times that the Oxford Press has started a junior French series, in which the texts are edited on reform lines. The copy before us has a French-English vocabulary, but the book is also supplied without it, at the same price. The exercises are in three sections: *Questionnaire*, questions on vocabulary, exercises in applied grammar. They are thoroughly satisfactory; some might, however, wish that they were fuller. A few notes are added, on the subject-matter. The text has been well printed; the only slip we have noticed is *rassure* for *rassuré* (p. 26, l. 18).

Molière, Les Précieuses Ridicules. Edited by Marc Ceppi. 76 pp. (Harrap.) 8d.—This volume of "Harrap's Shorter French Texts," contains accounts of Molière and of the "Précieuses," Molière's own "Préface," a well-printed text of the play, notes in English (largely renderings), exercises on the text, and a vocabulary containing the English of the unfamiliar words on each page of the text. The exercises consist of a *questionnaire* (the questions are not all good), exercises in crude grammar, questions on grammatical "bookwork," some applied grammar, and passages for retranslation. Whether a play by Molière is fit subject for such treatment may well be questioned.

Pitman's Examination Notes on French. By F. W. M. Draper. 50 pp. (Pitman.) 1s.—This is confessedly a cram-book; the author hopes that it will "give information leading to the answering of the latest thing in French examination questions." The first pages are given to the syllabuses of various examinations of matriculation standard or below it. Then come a number of sections: adjectives, adverbs, article, &c., in alphabetical order. In many cases the notes are neat, but sometimes exigencies of space have led to omissions. Thus in § 1 (feminine of adjectives) we miss the irregular, but very common, feminines

belle, folle, &c. The one example of proportional sentences (§ 10) does not suffice to make the difficulty clear. In § 23 the use of *que* with subjunctive in place of *si* should have been noted. The section on phonetics and on the stage are quite inadequate; the latter seems quite out of place. Some statements are unsatisfactory; thus to say that *si* takes the indicative mood (§ 22) implies that the future is permissible, and to say that "in dates it [*mille*] is spelt *mil*" implies that it would be correct to write *l'an trois mil*.

Sante Giuffrida, Nuovo Corso di Pedagogia Elementare. Volume Terzo. Parte III. Sezione Prima: Pedagogia Inglese. 241 pp. (Torino: Scioldo.) 2.50 lire.—Prof. Giuffrida approaches his subject in an eminently sympathetic spirit, and his book on the outlines of English education will doubtless be of considerable interest to the Italian student and teachers, for whose use it is intended. Particular attention is devoted to Herbert Spencer (46 pp.) and Alexander Bain (25 pp.) Recent developments, however, have received scant attention. Mention is indeed made of Baden Powe [*sic!*] and the Boy Scouts, but not of Free Placers. Misprints are regrettably frequent, e.g., *Rogged Schools, Frount* (=Truantly) *Schools, Poaple's Palace, Toimbee Hall, law-tennis, Weistminster, Malboroug, Chaterouse.* Such carelessness is inexcusable.

Classics.

Silva Latina, a Latin Reading Book. Chosen and arranged by J. D. Duff. viii+184 pp. (Cambridge University Press.) 2s.—Some of the members of the Classical Association will like this book, and some will not, because it marks long vowels when not in a heavy syllable. At least, it intends to mark them, for there are some slips, e.g., *quoslibet* (p. 113), *utrasque* (p. 112), *aiunt* (p. 64), to take a chance page or two. The extracts are good, the notes pithy and few—they perhaps might be fewer still (e.g., "*quod*, pronoun"). But on the whole it is a useful reading book.

Fourteen Satires of Juvenal. Translated into English by A. Leeper. xii+226 pp. New and Revised Edition. (Macmillan.) 5s.—Mr. Leeper's Juvenal is well known; it was originally done in collaboration with Prof. Strong, and afterwards revised by Prof. Leeper, and the present edition is, the translator tells us, practically a new work. It includes the Sixth Satire, but not II. and IX. It is done in a plain style, well suited to the author, but not so rhetorical; it is true our language is less rhetorical than Latin, but perhaps this might be more so with advantage. It is probably the best prose translation of Juvenal in English.

Latin Love Poems. Translated by J. M. Krause. viii+136 pp. (Kegan Paul, Trench, Trübner.) 1s. 6d. net.—Mr. Krause was perhaps wise not to attempt the *Pervigilium Veneris*, but we miss it in such a collection. He is a bold man, anyhow, who tries to translate Latin love-poems; the compression and strength of Latin, and the rhetoric, are alike impossible in English except for a master. Thus Catullus 7 to Lesbia, in Latin both rapid and strong, is watered down in the English with a long flowing rhythm, not unpleasing, but not like Catullus. Again, the hurrying lines of Catullus's version of Sappho (51) are almost unreadable:

"Woe is mé, for this snatches my senses away—
My tóngue becomes pálsied,"

and so forth. Again, the simplicity of the Latin in Catullus 85 is spoilt by using nouns for verbs. Where Mr. Krause uses slower rhythms (Catullus 8)

he is much better. We have been pleased with many of the versions, and the choice is made with judgment and taste; it is a book for the lover of poetry to keep in his pocket.

Caesar in Britain and Belgium. Simplified Text, with Introduction, Notes, Exercises, and Vocabulary by J. H. Sleeman. xxx+124 pp.; illustrated. (Cambridge University Press.) 1s. 6d.

Vergil's Athletic Sports, selected from Vergil's Aeneid. Edited, with Introduction, Notes, and Vocabulary, by E. E. Winbolt. x+88 pp.; illustrated. (Bell's Simplified Classics.) 1s. 6d.

Both these books ascribe their origin to the Curriculum Committee of the Classical Association, which recommends simplified texts for the second year. Apart from the simplification, and some of Mr. Winbolt's exercises, they are very much as other books are. Each has a running analysis in English, notes in English, and a complete vocabulary with English meanings: all these things are bad, if the experience of modern language teachers and common sense go for anything. Mr. Winbolt's notes are better, because they are fewer: Mr. Sleeman has actually thirty pages of notes, with the usual information about "rest in" and "motion to," *secum* with *cum* after *se*, dative of advantage, and all the rest of it. All these things ought to be left to the pupil to find out, which he can easily do if his first year has been well spent. Each has English sentences to put into Latin, useful, no doubt, on occasion; Mr. Winbolt has also Latin questions—to help the teacher, of course, for they simply bore the boy unless given naturally without book. Mr. Sleeman very properly marks all long vowels: Mr. Winbolt, more timid, only a few here and there—a mischievous practice. Perhaps these books may help in a stage of transition, but they try to serve two masters.

English.

History of English Literature. By Andrew Lang. 688 pp. (Longmans.) 6s.—It is a very rare thing to get a history of literature from so versatile a pen as the late Mr. Andrew Lang's; and surely everyone wondered at the publication of this book. It bears a few marks of haste, and it would be strange if it were not unequal, but it is a masterly and brilliant performance. Yet it cannot be said to be for schools, though the publishers, by dividing it into cheaper parts, seem to think so; unless, indeed, schools possess teachers who can, in passing, explain the author's *sotto voce* sayings. Of course, one recognises the hand; Jeanne d'Arc is the King Charles's head; but, O ye dreary compilers of histories of literature, sit down and see how fascinating a thing can be made of your work! Always brave in opinion, generally orthodox, full of allusion that tumbles out of his well-stocked brain, the writer has made the story live once more. The criticism will probably be that we have too many of the views of Andrew Lang; would we had more, and that the huntsman's horn could sound again! With Miss Buckland for the younger and this book for the elder reader, and Gosse and Garnett's pictures, no one can say that a reader need ask a finer introduction to the story of English books.

A History of English Prose Rhythm. By George Saintsbury. 489 pp. (Macmillan.) 14s.—Prof. Saintsbury has surely caught himself napping, for in the very last page he is more than doubtful if it were worth while to write so many pages to come to so very small a result. The five hundred pages go to prove that the sensitive ear is judge, and final judge, of prose rhythm. It is a dangerous thing to criticise anything of the professor's; and if this book had been called "a view of prose rhythm, with illustrations and

discussions of prose style," no criticism would be possible. It is impossible to understand the markings whereby the rhythm is seen, and the longs and shorts are nothing to the English eye and ear, which look for the reader's stress. The writer marks the following passage: Liquors | not | to be computed | by years | of annual | magistrates | but by great | conjunctions | and the fatal | periods | of kingdoms. What do such marks mean? Surely, looked at from the scanner's or the reader's point of view, the passage runs: Liquors | not-to-be-computed | by-years-of-annual-magistrates | but-by-great-conjunctions | and-the-fatal | periods | of-kingdoms—where the rhythm is distinct and fine. But it is of no use to argue even with a beginner rhythmist; and it is idle to try to persuade one who is omniscient in the literature of this difficult subject. When we leave the discussions on rhythm the book becomes delightful; crammed with pithy criticism, full of admirable quotations, and always redolent of Prof. Saintsbury. But for your epitrites and molossi, your procelesmatics and di-iambes—and yet a book on prose rhythm (of about twenty pages) is wanted.

Letters of Great Writers. Edited by H. V. Taylor. 372 pp. (Blackie.) 4s. 6d.—However much this book owes to greater collections, it seems to be the best small collection of letters yet published. Indeed, Baptist Scoones' book is the only portable collection well known. Even Mr. Taylor's book might be abbreviated in certain parts and enlarged in others, and no one would complain of another fifty pages, for, *pace* the editor, Spenser and Shakespeare's dedications are not "letters." The preface rightly demands a knowledge of letters from those who study literature and men; and no one who had not read them before will fail to see the pathos and the value, as sheer criticism, of the Johnson, Milton, and Pope letters in this series. One sometimes wonders what the ghosts of great writers would say if they knew of the publication of their letters; but we cannot always be certain that they did not fear the publication, and sometimes, as we know, they courted it. But in these cases we should rule the letters out of court as autobiographic or critical material. They become essays. The book is very clearly printed and has adequate notes.

History.

An Experiment in History Teaching. By E. Rockliff. 72 pp. (Longmans.) 2s. 6d. net.—Every teacher should read this little book. It is the account of an actual experiment carried out with success by a teacher now engaged, we understand, in one of the schools of the Society of Jesus. He wished to make his English history teaching vivid and interesting to his fourteen-year-old and younger boys, and attained it by drawing, and causing them to draw, charts of the period studied, composed not so much of words and dates, as of expressive symbols. It is impossible in these pages, nor would it be fair to the author, to describe his method, but we can well understand that with a teacher who grasps the principle and enters *con amore* into the spirit, history lessons need be no longer dull for beginners.

The Ancient World. By C. du Pontet. xi+388 pp. (Edward Arnold.) 4s. 6d.—Our knowledge of the ancient world is constantly—we might even say rapidly—increasing, and there is always need for a small book for those who are unable to do research work or even to read and understand the big books which the researchers write, to keep them up to date and to help them to realise ever more vividly the pre-European stage of history. So while we still remember with gratitude Miss Wilmot Buxton's book on this subject, published eight years ago, we welcome Mr. du

Pontet's book with the same title. Egypt, Babylon, Israel, Troy, Hellas, Persia—these names and others which we might quote give an idea of the author's range, and he brings his story down to the assassination of Julius Cæsar. It is most readable from beginning to end, and should find a place in every school library for the delectation and profit of teachers and pupils.

An Introduction to English Industrial History. By H. Allsopp. xii+160 pp. (Bell.) 2s.—The extension of education to "working men" has developed a literature of serious books, and there is no better example of such work than this little book, which has been written, appropriately enough, by the vice-principal of Ruskin College, Oxford. In easy language, yet with thoroughness of information, with an eye to his readers, yet with strict impartiality, he tells the story of the organisation of industry in England from the early beginnings to the present day. Mr. Allsopp has added to the value of his book by giving a really useful bibliography of "interesting books for further reading," of books "for general industrial history" and "for really advanced study." We could wish he had included in the first Dr. Jessopp's "Coming of the Friars." There is also an index.

Mathematics.

An Introduction to Algebraical Geometry. By A. Clement-Jones. 548 pp. (Clarendon Press.) 12s.—The author states that his desire has been to write a book suitable for beginners who wish to acquire a sound knowledge of the subject, and yet at the same time sufficient for candidates for mathematical scholarships. Roughly speaking, there are three distinct methods of investigating geometrical properties, those of Euclidean geometry, of projective geometry, and of algebraic geometry. A scholarship student has to be acquainted with all three methods, and he has consequently to do a good deal of work in connection with the conics three times over. Of recent years there has been a tendency to combine the methods, using that which leads most directly to the property sought. It is best, however, for the mixture to be effected by the teacher, and writers of textbooks are well advised to confine themselves, as in the book before us, to one of the methods. The order of development of the subject adopted does not differ in any essential respect from the usual one. Following Salmon, abridged notation is introduced in the chapter on the straight line, and we agree with the author in considering that this provides the best way of approaching homogeneous co-ordinates. There is an excellent chapter on imaginary points, and on points and lines at infinity. In most text-books these matters are very inadequately explained, and consequently they are a source of bewilderment to the student for the greater part of the time. The large number of worked examples should prove helpful in elucidating difficulties. Altogether we consider the book to be one which teachers will be able to use with great satisfaction.

Science and Technology.

The Advance of Photography. By A. E. Garrett. 382 pp. (Kegan Paul.) 12s. 6d. net.—This interesting volume deals with the history and modern applications of photography, and is based on Vogel's "Chemistry of Light and Photography." In the thirty years that have elapsed since the revision of the latter book the science of photography has made rapid strides, and although Vogel's historical survey has been adopted almost without alteration, the present volume is otherwise practically a new work. Mr.

Garrett has succeeded in giving an excellent all-round presentation of the basis of photography, its practice, and its application. Anyone who is interested in the subject, and has a moderate stock of scientific knowledge, will derive both pleasure and profit from a perusal of the book. A satisfactory feature is the up-to-date character of the discussion of such matters as colour photography, photo-telegraphy, and animated photography. A wealth of valuable information on the chemical action of light, on lenses and camera appliances, on plates, films, and papers, on the preparation of book illustrations, and on the use of photography for scientific purposes, is also communicated. The excellent illustrations, about 170 in number, are a great help to the reader, and make clear not only the varied appliances used in photography, but also the extent to which the pictures obtained depend on the right use of these appliances.

Elements of Inorganic Chemistry. By the late W. A. Shenstone, F.R.S. xii+567 pp. (Edward Arnold.) 5s.—This new issue has been edited by Mr. R. G. Durrant, and Sir William Tilden contributes an introduction. The chief alteration, besides the enlarged type, is the omission of black-line margins, and of numbers to the various articles throughout the book. Several of the chapters, notably those on radioactivity and electrolysis, have been revised and extended. Excellent in many respects as this volume is, one finds ground for criticism, more especially in the treatment of the more physical aspects of the subject. A paragraph, for instance, on "The Hydron Theory of Acids," introduced before the electrolytic dissociation theory has been explained, will only confuse the beginner. The electrolytic dissociation theory itself receives very inadequate treatment. The curves obtained by plotting the percentage strength of common acids and ammonia against specific gravity are described as "solubility curves." This is quite erroneous.

Problems in Practical Chemistry. By G. F. Hood. vi+265 pp. (Mills and Boon.) 5s. net.—This volume is intended for advanced students, and suggests numerous exercises on such matters as the preparation and properties of elements and their compounds, the determination of equivalents, volumetric analysis, the formulæ and constitution of organic compounds. The problems are suggested very briefly, and the time necessary for the work is indicated in each case, while an appendix, occupying considerably more than half the book, supplies explanatory comments on the experiments. The volume should be useful for the student who has already covered the preliminary stages of qualitative and quantitative analysis.

Art.

Pastel Work By H. A. Rankin. 159 pp.; illustrated. (Pitman.) 4s. net.—This book forms a very worthy successor to "Simple Lessons in Colour" by the same author, which was noticed in these columns some months ago. Mr. Rankin brings to bear on his subject both artistic skill and practical knowledge gained in the stern school of experience as a teacher, with the result that the theories and principles he enunciates are artistically sound, and are at the same time presented in such a manner as to anticipate and minimise the difficulties likely to be encountered by the inexperienced teacher. The subject is one which lends itself well to class treatment. The book is full of valuable suggestions, and if used in accordance with the author's intention, and not merely as a book of "copies," can be made an enormous power for good; it is to be most cordially recommended.

EDUCATIONAL BOOKS PUBLISHED DURING AUGUST, 1912.

Modern Languages.

"Die Flut des Lebens." By Adolf Stern. Edited by Alfred Oswald. (Little German Classics.) 56 pp. (Blackie.) 6d.

"Der Geiss-Christeli." By Ernst Zahn. Edited by K. Dirlinger and E. B. Trentham. (Little German Classics.) 32 pp. (Blackie.) 6d.

"Le Lac des Gers." By Rodolphe Töpffer. Edited by J. W. Schopp and A. S. Trèves. (Little French Classics.) 40 pp. (Blackie.) 4d.

"New Phonetic French Reader." By Marc Ceppi. 64 pp. (Hachette.) 1s.

"Hachette's Popular French Authors." (New volumes.) Hégéssippe Moreau, "La Souris Blanche." With Vocabulary, &c. By J. G. Anderson. 48 pp. (Hachette.) 6d. Alphonse Daudet, "La Mule du Pape; Le Chèvre de M. Seguin." With Vocabulary. By E. Ruf. 48 pp. (Hachette.) 4d. A. Dumas, "L'Évasion du Duc de Beaufort." With Vocabulary. By A. Barrère. 48 pp. (Hachette.) 4d.

"Conversation Drill. The Sesame to Colloquial French." By "Max." 64 pp. (Hachette.) 1s.

Meilhac and Halévy, "L'Été de la Saint-Martin." Edited by E. J. A. Groves. 96 pp. (Hachette.) 6d.; or cloth, 8d.

"Waterloo." New and cheaper edition. By Erckmann-Chatrian. Edited, with Notes and Vocabulary, by E. L. Naftel. 340 pp. (Hachette.) 2s.

"Le Verbe en Action." By E. J. A. Groves. 48 pp. (Hachette.) 1s.

"Molière en Récits." By Mdlle. L. Chapuzet and W. M. Daniels. 222 pp. (Harrap.) 1s. 6d.

"Agnes Bernauer." By F. Hebbel. Edited by M. Blakemore Evans. 163 pp. (Heath.) 1s. 6d.

Marevaux: "Le Jeu de l'Amour." Edited by Alcée Fortier. 96 pp. (Heath.) 1s.

"Dictionary of German-English and English-German." By Max Bellows. 820 pp. (Longmans.) Cloth, 6s. net.; leather, 8s. net.

"French Self-Taught (Thimms System)." By J. Laffitte. 148 pp. (Marlborough.) 1s.; cloth 1s. 6d.

"French Grammar Self-Taught." By J. Laffitte. 136 pp. (Marlborough.) 1s.; cloth 1s. 6d. Key 6d. Set of three books banded together, 2s. 6d. Three books bound in cloth, 3s. 6d.

"Traveller's Practical Manual of Conversation in English, French, German, and Dutch." 152 pp. (Marlborough.) 1s.; cloth, 1s. 6d.; leather, 2s. 6d. net.

Classics.

Cæsar, "Gallic War." Book IV., ch. 20, to Book V., ch. 23, &c. Introduction, Text, Notes, and Lexicon. By L. M. Penn. (School Latin Classics.) 98 pp. (Clive.) 1s.

English: Grammar, Composition, Literature.

"Black's Sentinel Readers." Books IV. and V. Each containing eight full-page illustrations in colour. By E. E. Speight. (Black.) 1s. 6d. each.

"The Battle of the Nile." Letters and Dispatches of Lord Nelson. Edited by Dr. Rouse. (Blackie's English Texts.) 128 pp. (Blackie.) 6d.

"The Romance of Natural History." By Philip Henry Gosse. Edited by Dr. Rouse. (Blackie's English Texts.) 128 pp. (Blackie.) 6d.

"Goblin Market." By Christina Rossetti. Edited by Edith Fry. (Blackie's Smaller English Classics.) 32 pp. Paper 2d.; cloth 3d.

"First Sketch of English Literature." New edition. By Prof. Morley. 1196 pp. (Cassell.) 7s. 6d. net.

"New Guide" Readers. With entirely new and

original illustrations. Grade 3, "Tales from Gulliver's Travels." 56 pp. Paper, 3d.; cloth, 4d. Grade 4, "The Magic Fishbone." By Charles Dickens. "The Piskey Shoemaker." By Enys Tregarthen. Each 64 pp. (Davis and Moughton.) Paper, 3½d.; cloth, 4½d.

"Junior Course of English Composition." By E. W. Edmunds. 236 pp. (Clive.) 1s. 6d.

"Le Morle D'Arthur." A Middle English Metrical Romance. By Samuel B. Hemingway. 166 pp. (Harrap.) 1s. 6d.

"Girl Wanted." By Nixon Waterman and Grace Bartruse. (Harrap.) 2s. 6d. net.

"Treasury of Scottish Verse." By H. A. Kellow. (Harrap.) 6d.

"History of English Literature from 'Beowulf' to Swinburne." By Andrew Lang. (Longmans.) 6s.

"An Anthology of English Prose." Part I., 1332-1740. By Annie Barnett and Lucy Dale. 2s. 6d. Part II., 1741-1892. 3s. 6d. (Longmans.)

Hawthorne, "Tanglewood Tales." Part I., "The Minotaur, the Pygmies, the Dragon's Teeth." Edited by J. H. Fowler. 128 pp. (Macmillan.) 1s.

Shakespeare, "A Midsummer Night's Dream." Edited by E. C. Noyes. 196 pp. (Macmillan.) 1s. net.

"Language and Sense Training Games." By Louie Jesse. 64 pp. (Pitman.) 1s. net.

History.

"History of the People of the United States." Vol. viii. (completion of work). By McMaster J. Bach. (Appleton.) 10s. 6d. net per volume.

"English History Illustrated from Original Sources, 1066-1216." By N. L. Frazer. (Black.) 2s. 6d.

"A Combined Tudor and Stuart Periods." ("Tower" Series.) By Mary S. Hancock. 282 pp. (Pitman.) 1s. 8d.

Geography.

"The Churches of Nottinghamshire." By Rev. J. Charles Cox. (County Churches Series.) 252 + xviii pp. (Allen.) 2s. 6d. net.

"Junior Geography." Fourth edition, revised, with many new and improved diagrams. By A. J. Herbertson and R. L. Thompson. (Oxford Geographies.) 208 pp. (Clarendon Press.) 2s.

"Geography of the British Isles." With Outlines of Physical Geography. By G. C. Fry. 186 pp. (Clive.) 1s. 6d.

"A First Book of General Geography." By B. C. Wallis. 160 pp. (Macmillan.) 1s. 6d.

Mathematics.

"Handbook of Municipal Accounting." By N. L. Leonhauser. (Appleton.) 4s. 6d. net.

"Auditing: Theory and Practice." By R. H. Montgomery. 600 pp. (Appleton.) 21s. net.

"Analytical Geometry: A First Course." By C. O. Tuckey and W. A. Naylor. xiv + 368. (Cambridge University Press.) 5s. net.

"A Shorter Geometry, together with Solid Geometry." By C. Godfrey and A. W. Siddons. (Cambridge University Press.) 4s.

"Differential and Integral Calculus." By Lorrain S. Hulburt. (Longmans.) 9s.

"The Teaching of Mathematics in Secondary Schools." By Arthur Schultze. 392 pp. (Macmillan.) 5s. 6d. net.

"Exercises in Modern Arithmetic." By H. Sydney Jones. 346 pp. (Macmillan.) 2s. 6d.

"Number Plays and Games for Infants." By C. Struthers. 68 pp. (Pitman.) 1s. 3d. net.

"Visual and Observational Arithmetic." By A. J. Berry. 167 pp. (Pitman.) 2s. 6d. net.

"Experimental Mathematics." I. By C. R. Vine. 62 pp. (Pitman.) 7d. net.

Science and Technology.

"An Introduction to the Study of the Protozoa." With special reference to the Parasitic Forms. By Prof. E. A. Minchin. (Edward Arnold.) 21s. net.

"Scientific Method: its Philosophy and its Practice." By F. W. Westaway. 440 pp. (Blackie.) 6s.

"Examples in Applied Electricity." By C. G. Lamb. iv+62 pp. (Cambridge University Press.) 2s. 6d. net.

"Chemistry for Use in Egyptian Schools." By H. W. Bausor. Part I., Third Year Course. 94 pp. 1s. 6d. Part II., Fourth Year Course. 200 pp. 2s. (Clive.)

"Intermediate Physics." By Prof. W. Watson. (Longmans.) 6s. net.

"Electricity and Magnetism for Advanced Students." By Sydney G. Starling. (Longmans.) 7s. 6d. net.

"College Zoology." By Robert W. Hegner. 760 pp. (Macmillan.) 11s. net.

"Electric Lighting." By W. S. Franklin. 308 pp. (Macmillan.) 10s. 6d. net.

Pedagogy.

"The Founder of Modern Psychology." By G. Stanley Hall. 471 pp. (Appleton.) 10s. 6d. net.

"Sociology in its Psychological Aspects." By C. A. Elwood. (Appleton.) 10s. 6d. net.

"Introduction to Experimental Education." By R. R. Rusk. (Longmans.) 4s. 6d. net.

"Better Schools." By B. C. Gregory. 296 pp. (Macmillan.) 5s. 6d. net.

"Education: a First Book." By Edward L. Thorndike. 304 pp. (Macmillan.) 6s. net.

School Music.

"The Nights." Unison Song. By Sir F. Bridge. 4 pp. (The Year Book Press.) 2d.; Sol-fa 1d.

"Osme's Song, from 'Sylvia.'" Two-part Song. By Dr. Chas. Wood. 8 pp. (The Year Book Press.) 3d.; Sol-fa 1½d.

"That Voice." (Irish Folk-song.) Two-part Song. By Dr. Chas. Wood. 6 pp. (The Year Book Press.) 2d.; Sol-fa 1d.

"The Lamb." Two-part Song. By Thos. F. Dunhill. 8 pp. (The Year Book Press.) 3d.; Sol-fa 1½d.

Miscellaneous.

"The New City Government." By H. Bruere. (Appleton.) 6s. net.

"Democracy and the Church." By S. Smith. (Appleton.) 6s. net.

"Newspaper Reporting and Correspondence." By G. M. Hyde. (Appleton.) 6s. net.

"Rambles in the Woodlands." By Wm. J. Claxton. (The Rambler Nature Books.) 96 pp. (Blackie.) 9d.

"Real Siberia." By J. F. Fraser. 280 pp. (Cassell.) 1s. net.

"Among the Heretics in Europe." By J. A. Packer. 188 pp. (Cassell.) 2s. 6d.

"Health for the Young." 128 pp. (Cassell.) 1s. net.

"Health and Right Breathing." 128 pp. (Cassell.) 1s. net.

"Phonic Preparatory Reader." 63 pp. (McDougalls.) 6d.

"Woodside, Burnside, Hillside, and Marsh." Cheap edition. By J. W. Tutt. viii+250. (The Year Book Press.) 2s. net.

"The Naturalist in Siluria." Cheap edition. By Captain Mayne Reid. vi+240 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.

Greek Words in English.

I CAN remember a time when I was inclined to use arguments similar to those expressed by Mr. Willis in THE SCHOOL WORLD for September. But a much longer and wider experience has largely modified such views, and I now think that we ought to beware of such specious suggestions.

It is far too late in the day to restore Greek lettering, even if it were always desirable. No one can alter the fact that our spelling is not founded on a classical basis, but rather upon Anglo-French. The plea put forward exaggerates very greatly the value of Greek. It is a grave mistake to reckon the relative number of derived words by consulting a dictionary. The right way of estimating words is by counting their number in actual paragraphs, as they occur in books. A word like *aphelion* or *amorphous* is only used once where a word like *of* or *and* is used thousands of times. Yet it is often considered to be a mark of "scholarship" to know the etymologies of *aphelion* and *amorphous*, while the etymologies of *of* and *and*, which are of far greater importance, are not merely neglected, but despised. No one can really understand our spelling until he has learnt its history, and can tell, accordingly, the reason for the difference in appearance between *see* and *sea*. If Latin and Greek are of etymological importance, surely the far more numerous words of Old English, Old Norse, and Anglo-French origin are of far greater importance; and critics who are not familiar with the spellings of these languages have but small claim to be heard.

The plea really amounts to this: that words of Greek origin should be spelt according to Greek lettering; and words of Latin origin according to Latin lettering; but words of English and French origin according to the sound, at least in many instances. It is just this mixture of two conflicting and irreconcilable principles that has wrought all the damage. I explained the whole matter in chapter xvi. of my "Principles of English Etymology," First Series, just twenty years ago; and the indictment which I there prefer against our present confused system has never yet been answered; nor ever will be.

Of course, in *any* improved system, Greek lettering will have to go. It is not so very valuable after all. The argument that when a connection (classically and correctly and etymologically spelt *connexion*) is weakened, "the word dies," is contrary to fact. A certain derivative of the Latin *sentire* is only too much alive under the disguised form *scent*; and certain Greek words are quite familiar as *aneurism* and *syren*. No false spelling ever killed a word that is often heard. The thing is impossible; for it is only the spoken word that is real; its written symbol, however convenient, is merely a conventional representation. The man who can neither read nor write is by no means dumb.

At present three systems are actually concurrent. The first is phonetic, as in *not*, *sin*; the second is "etymological," often falsely so-called, as in the foolish form *debt*; and the third is the principle of using either of these indifferently, or of departing from both!

Common sense tells us that the phonetic system

formerly in use requires careful revision, owing to numerous changes in our pronunciation.

WALTER W. SKEAT.

THE seed scaterd bi the S.S.S. bairz aul ciendz ov fruut. Wun iz the leter in yur laast isyu about the speling ov English wurdz derievd from the Greec. Let me singl out the wun point on which I agree with Mr. Willis—hiz objecshon tu the prezens ov *k* and *c*, with the saim valyu, in such a wurd az “kaleidoscope.” Let us hav tu *k*'z or tu *c*'z, bi aul meenz; I doent veri much cair which.

But when Mr. Willis taucs about the corrupshon ov such a wurd az “cynic,” and triez tu maic out that if I riet “sinic” the significans ov the wurd iz destroid, and maintainz that “the force and efficiency of such words depend upon their power to maintain connection with the root from which they are derived,” then I feer we must part cumpani. When sumbodi caulz me a “sinic,” the wurd haz sufishent “fors and efishensi” tu maic me retaliat with enerji; yet in hiz pronunsiashon thair iz nuthing tu indicait that when he iz utering “si” theez sounds ar convenshonali spelt “cy.” The speling “cynic” iz itself unsatisfactori tu Mr. Willis, hu wood prefer tu riet “kunik.” This miet sujest tu wun speecer ov English in ten thouzand a conecshon with the “ruut” that signifiez a dog; and whot help duz that giv in arieving at the prezent meening ov the wurd?

If we ar tu chainj our speling bi “restoring the Greec letering,” let us be consistent and riet *bikukl*, *koimeteri*, and *phansi* for *bicycle*, *cemetery*, and *fancy*. And whi not treet Latin with similar respect? and Oeld English? Thair iz no limit tu the amount ov etimological informaishon we can cram into the riten wurd, if we oenli maic it long enuf—and pai no heed tu its form in the liviner, spoecen langwij. Whi not spel *ransom* r-e-d-e-m-p-t-i-o-n? and *mob* m-o-b-i-l-e-v-u-l-g-u-s? and *Canterbury* C-a-n-t-w-a-r-a-b-y-r-i-g? It wood be moest instructiv.

I hav the graitest admiraishon for Greec; but it duz not render me def tu the cring need ov a rashonal speling. Thair ar milionz hu lurn English and no uther langwij; ar thai tu sufer for the saic ov the veri fyu hu hav the privilej ov lurning Greec? And if we adopt a rashonal speling, wil thair not stil be milionz ov boocs in the oeld bad speling, from which the styudent can obtain such nolej ov the derivaishon az (in an unsistemetic and not aulwaiz trustwurthi fashon) it afordz? He wil be aibl tu gain “kudos” for hiz lurning no les than nou. I cood not refrain from introducing this wurd which givz Mr. Willis so much satisfashon, aultho (in spiet ov the “Greec letering”) we pronouns it in a wai no Greec cood hav understood.

WALTER RIPPmann.

A Note on Parallel Straight Lines.

THE question of satisfactory modern alternatives to Euclid I. 27, *et seq.*, is like the poor: it is ever with us.

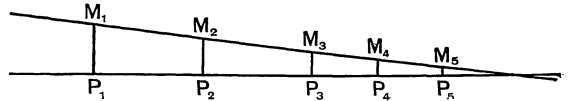
Playfair's axiom does not carry conviction to any ordinary beginner; it only seems fishy to him, while the definition of parallel straight lines as those having the same direction seems to him dishonest, as it is, for it assigns to an ordinary word a meaning at variance with the common usage of the term, which denotes progress to a common goal.

The one thing certain seems to be that in ordinary people's minds the significant fact about parallel lines is their non-intersection and coplanarity, the term always being used in reference to coplanar lines, and the ordinary man seems oblivious of the existence of non-parallel non-intersecting lines in space. Would it therefore be permissible to deal with the question

of parallelism on an experimental basis?—for, after all, geometry is an experimental science, like the rest of mathematics.

We might begin the treatment of parallelism thus:—

Consider two lines P_1P_5 and M_1M_5 meeting to the right as in the figure, where transversals P_1M_1, P_2M_2, \dots exist perpendicular to P_1P_5 .



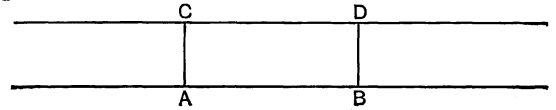
Then actual measurement shows

$$P_1M_1 > P_2M_2 > \dots$$

Hence if P_1P_5 and M_1M_5 were coplanar and did not meet either to the right or to the left, then would

$$P_1M_1 = P_2M_2 = P_3M_3 = \dots$$

We then have for two parallel lines AB and CD, where AC and BD are both perpendicular to AB, this figure



in which

$$AC = BD$$

$$\angle CAB = \text{rt. } \angle = \angle ABD$$

and all thenceforward is plain sailing.

I should be very glad of your readers' comments on this matter. At present a lot of shuffling proving of theorems is abroad in our schools, much unconsciously so.

ARNOLD MERRICK.

Macclesfield Grammar School.

Anvils or Stones on Hera's Feet?

THE reviewer of my translation of the *Iliad* of Homer in the August number of THE SCHOOL WORLD falls foul of me for making Zeus hang two “anvils” to Hera's feet. He says I have been led astray. Possibly, but in good company. Leaf sees nothing ridiculous in the rendering, nor does Purves (in his translation of the *Iliad*). Lord Derby translates the word as I have done, and apparently Paley takes the same view. Possibly your reviewer is right in preferring the rendering “stones,” but there is no “of course” about it, as he dogmatically asserts.

E. H. BLAKENEY.

King's School, Ely.

Securus iudicet orbis terrarum.

THE REVIEWER.

The School World.

A Monthly Magazine of Educational Work and Progress.

EDITORIAL AND PUBLISHING OFFICES, ST. MARTIN'S STREET, LONDON, W.C.

Articles contributed to “The School World” are copyright and must not be reproduced without the permission of the Editors.

Contributions and General Correspondence should be sent to the Editors.

Business Letters and Advertisements should be addressed to the Publishers.

THE SCHOOL WORLD is published on the first of each month. The price of a single copy is 6d. Annual subscription, including postage, 7s. 6d.

The Editors will be glad to consider suitable articles, which, if not accepted, will be returned when the postage is prepaid.

All contributions must be accompanied by the name and address of the author, though not necessarily for publication.

The School World

A Monthly Magazine of Educational Work and Progress.

NO. 167.

NOVEMBER, 1912.

SIXPENCE.

A THREE YEARS' LATIN COURSE.¹

By MISS E. RYLE,

Aigburth Vale High School, Liverpool.

IT would not be uninteresting to make a collection of the aims of education, as defined by the great educationists of the world, both theoretical and practical. We should find these aims very differently expressed, and actually differing widely, at various periods of history, and among various schools of thought. With some, the work of education has been frankly in the interests of a church, as with the Jesuits, who aimed definitely at establishing the youth in their allegiance to the Church of Rome, and in the conversion of the heretic; Montaigne would have us make "not a grammarian or a logician, but a complete gentleman"; some have regarded the school as the training-ground of the future statesman and governor of men; or, as Milton, of the citizen-soldier; others, taking a broader view, have looked to the development of the whole human being, in whom "nor soul helps flesh more, now, than flesh helps soul."

Undoubtedly, that is how most of us, in this twentieth century, regard the matter. We may vary in our ideas of method, and have widely diverse ways of reaching our goal; but probably all of us here would wish to see, as the result of our educating, men and women in whom body and mind are harmoniously developed in all their functions, with senses alert and trained, with interests wide and awake, with power to express themselves in action and speech and writing; healthy and sane and generous; ready and able to enjoy life in all its fullness. In short, we would wish them to come, physically, intellectually, spiritually, to the full measure of a man.

Such are the aims of education in general—not always achieved; and such are the aims that each branch of education, too, will keep in view, and serve in its own way.

How does the study of Latin contribute to these ends? For we may assume, I suppose, that our presence here is a proof that we all do believe in the educational value of Latin. Whatever the rest of the world may say, we have no doubt that knowledge of the Latin language, combined with some acquaintance with the literature and history of Rome, is of very real worth. It calls into play sound judgment and discrimination and accuracy; it lays the foundations of a pure literary style; it reveals a great language as the vehicle of great ideas; but, above all, it leads into those fair pastures wherein, as Plato said, the young should browse, daily feeding upon the beautiful. It was such knowledge that helped to mould the minds and thoughts of Milton, of Pitt, of Gladstone, of the other thousands brought up under the old classical curriculum. But it was knowledge attained only by long years of study and painful effort, years of grammar, and "making of Latines," and meaningless construing. At first, and for the little boy, with his interests all centred on concrete things and active doings, Latin simply meant the Eton Grammar and the cane; only to the older boys, and not by any means to all of them, when the meaning of Virgil and Horace began to dawn on them, did Latin appeal for its own sake. The previous time, spent on accident and syntax, was, by itself, educationally wasted—it was worse than wasted, for it was thwarting and hindering the developing instincts of childhood, and casting repression and gloom over the time that should have been a time of freedom and happiness.

Now if the valuable knowledge of Latin which was found in former days was only reached after many years of preparation, and if those preparatory years were in themselves useless, what is the position of us whose pupils are going to have no more than a three or four years' course in the language? Are we employed, like daughters of Danaus, in a useless and never-accomplished task, or have

¹ A paper read at the Summer School for the Reform of Latin Teaching, Bangor, 1912.

we reason to claim that even these short years can be made years of real education, and can lead to some real knowledge of Latin? Let us first consider the situation, and realise what are the limitations which hinder us, and the difficulties that we must face.

The schools to which I refer are mainly those secondary schools in which a large proportion of the children leave at about sixteen. In the case of girls, at any rate, it is usual for Latin to be begun at about the age of thirteen or fourteen, and here is one of our difficulties, a difficulty which I believe is one reason for much of the inaccuracy and lack of thoroughness which mark the Latin of many "secondary school" children. How far this difficulty is felt in the case of boys, I do not know; but a girl, during the years from thirteen to sixteen (that is, during the three years of her Latin course) is developing mentally and physically with great rapidity, so that a considerable strain is often thrown upon her strength and powers. Though nature demands freedom and opportunity, wherein her work may progress quietly and evenly, a girl needs definite employment to keep her healthily occupied, and to give scope for her expanding interests. The kind of education that she needs is one on broad and rather general lines. While still a child in understanding she is often already a woman in her tastes and interests; hence the attention to detail, the linguistic drill, the memory work, which are necessary to a thorough knowledge of Latin, and which a younger girl can find quite enjoyable, are apt to be distasteful, and to savour of the childish, to one who is wanting to be and to be considered grown-up. With a boy, the corresponding period begins later, and lasts rather longer, and he is generally less easily overstrained. But to some extent, undoubtedly, the educational needs of boys and of girls at this age are similar: in neither case are the difficulties insuperable; in both, the method of teaching ought to recognise the fact that the pupil is no longer a mere child, but demands in his pursuits something that has relation to the life of which he is now becoming a conscious member.

In schools of the type with which I am dealing we meet other difficulties besides the shortness of the Latin course. Often the time allotted to the subject during the three years or so is quite inadequate. Three lessons a week for three years only produce some 350 lessons altogether, which is not much for a thorough knowledge even of the outlines of Latin, especially if the classes are large, as they not infrequently are. Often, too, there has been little or no preparation for the study of Latin, in grammar or in history, so that

both subject and form are strange and unassociated with previous knowledge. Frequently the home surroundings are such that the child can find no encouragement there, and little interest or sympathy in his new studies, which must indeed appear strangely unpractical to parents who earn their daily bread by manual labour, and with some difficulty keep their sons and daughters at school till sixteen, when they might already be contributing to the family income. Naturally these children themselves tend to take a utilitarian view of their studies; and if they are looking forward to a career of typewriting, or office work, or millinery, or domestic cares, it is not surprising if they say, "What is the use of Latin?"

A further difficulty is that about buying school books. Where the children are poor there must be strict economy in expenditure, and even the essential text-books are sometimes difficult to get, far more such books of reference, atlases, dictionaries, and so forth, as each child ought really to possess.

Yet in spite of these obstacles and limitations, I believe that a short Latin course can be of real educational worth, if, on the one hand, the scanty time at our disposal is economised and spent to the best advantage; and, on the other hand, the subject is presented in such a way as to have a living interest, and really to become part of the pupil's experience. Unless this true interest is present, the educational value of Latin, or any other subject, is a negligible quantity, even if enough knowledge has been acquired to satisfy the examiners of the Oxford and Cambridge Local examinations. In the first place, therefore, we must steadfastly exclude all that is unessential and trivial in grammar, in order that the time may be devoted to the firm foundation of the necessary knowledge. To this end the right choice of text-books, especially for the first two years, is of great importance. Many of the books commonly used are written for boys—not for girls, if the subject is supposed to bear relations to the pupil's interests—who begin quite young, and are likely to continue the study of it for several years; with the result that the subject-matter is either mainly military or else rather puerile and meaningless, while the grammar involved is too much in detail.

If possible the previous teaching in English grammar, in history, and in literature should help to pave the way for the introduction of Latin. The grammatical knowledge necessary is really very simple: elaborate analysis of involved and inverted sentences is of little service; but familiarity with the parts of speech, with the structure and main divisions of the simple sentence, and with the tenses and voices of the verb, is really of importance. It is

scarcely necessary to add that some uniform terminology in the different languages is needed. It is very desirable, too, that interest in the Roman people should have been awakened by some study of Roman history, or even of stories from Roman history, or at any rate that the connections between Britain and Rome should be realised. English literature can be correlated with the study of Latin by the choice of reading, such as North's Plutarch, Macaulay's Lays, Church's Story of the Æneid, and Shakespeare's Julius Cæsar or Coriolanus.

Every school which makes Latin part of its curriculum ought to be supplied with a certain amount of apparatus: good, clear maps of Italy, Rome, and the Roman Empire; wall pictures, illustrating Roman life, such as Dent and Philip publish; photographs of sculptures, buildings, roads, and camps; above all some good books of reference, such as a classical dictionary, an ancient history atlas, Bekker's Gallus, Gow's Companion to School Classics, the British Museum Guide to Greek and Roman Life; good translations of the great classics, and spare copies of Latin texts for occasional reference and classroom use. Some day, perhaps, when we have found a more excellent way of deciding international differences than the pagan methods to which we still cling; when the importance of education is better understood, and our nation realises that it is a matter more deserving of adequate support than are naval armaments, we shall see more generosity in the equipment of our schools.

Such books of reference as are available should be frequently used. It seems to me that we might attach more importance than we do to individual research; for instance, two or three times a term some subject can be proposed for the class to investigate at its leisure and on its own lines. Not long ago, during one of those end-of-term blank times which we all know, I suggested some research on Roman costume to my second year class. I lent one or two books, and mentioned another, which was in the public free library near by; and the papers and illustrations which I received in response told me that such individual work can often be far more valuable than the regular course of lessons.

The possibilities of the dramatic method in teaching are just now beginning to be realised, and certainly I believe that the value of acting Latin plays can scarcely be over-emphasised. It may seem that out of three or four lessons a week the time can be ill-afforded for this; but I am sure that the time thus spent is not wasted. Not only does the work enlarge and—what is more important—establish the

children's vocabulary, and familiarise them with constructions; it makes them realise the importance of clear and free speech; it gives scope for individual expression; it calls into play powers which the ordinary lesson leaves dormant; it makes Latin alive and enjoyable and real.

Hitherto I have dealt with the externals of the study of Latin, as distinct from its presentation; these are by no means to be disregarded, but they are perhaps of less importance than right methods of dealing with the subject. No doubt we have different ideas about right methods, and it is impossible for one teacher to speak dogmatically to another on a subject that depends so largely on personal bent and individual ideas. But I dare say we should agree in counting those methods best, from an educational point of view, which are most suited to the understanding of the child, which appeal most to his tastes and interests, which most call forth his powers, and lead him along the line of self-development. From a practical point of view, those methods will seem best by which some real knowledge and appreciation of the Latin language is gained: that is, methods by which the ideas summed up in the term "Latin" really become incorporated in the pupil's mental experience, associated with other ideas, and firmly established as a *κτῆμα ἐς ἄει*. Personally I am convinced that what we call the Direct Method best answers these requirements. It is unnecessary here to discuss in detail what we mean by the Direct Method; in a word, as its name implies, it seeks to connect the word or phrase directly with the idea or the object for which it stands, instead of indirectly, through the medium of another language. A pupil who has learned Latin in the old way, on hearing or reading the words "Eripiunt subito nubes caelumque diemque, Teucrorum ex oculis," translates them into their English equivalent—no, not equivalent—"Suddenly the clouds snatch away the sky and the daylight from the eyes of the Trojans," before he sees the image they convey; one who has learned to understand as he reads, sees face to face the picture of sea and gathered clouds, darkened sky, and sailors baffled by the elements.

The Direct Method, as many know, will involve the habitual use of spoken Latin in the classroom; reading in Latin, as distinct from translation; Latin questions and answers on the matter read; oral drill in grammar and syntax, different forms of composition, oral and written, such as the reproduction of a story told in class, or the expansion of a short outlined story, or a summary of what has been recently read. It is surprising how soon the

vocabulary can be steadily enlarged without always having recourse to the translation of a new word; before long many unfamiliar phrases and words can be explained in Latin or interpreted by synonyms or gestures; and the more that Latin explanations of words and phrases are supplied by the leaders of the class rather than by the teacher, the better it will be for them. At all stages it will be an understood thing that every difficulty met is mentioned by the pupils, and an explanation asked for. This will usually be given in Latin, aided perhaps by a blackboard drawing, or a dramatic representation; English will be used only as a last resort.

When these means are successfully employed Latin ceases to be a remote and disconnected collection of ideas, floating nebulously, always half out of reach of the mental grasp; it becomes a firm and established reality, a vehicle of thought which can be used; it is connected by a thousand associations with the rest of the child's experience; and instead of baffling and disheartening him with intangible difficulties, it gives him that consciousness of power which is essential to progress.

"When these means are successfully employed," I said, for one must admit that they present many problems, and the enthusiastic amateur may at first be frequently tempted to give up and return to the old familiar ways. One must be prepared for occasional failures. There is the danger of fogginess, and of new matter only half understood; there is continual temptation to neglect the necessary drill; though some children make rapid progress, there still remains the problem of those few who seem incapable of understanding or learning aught save phrases like "Non intellego," and "Quid significat?" Nevertheless the goal is worth the risks, and the success that some have won is emphatic enough to prove that this way lies our path.

The results to which we shall look for encouragement will not be merely surer knowledge of grammatical forms and syntax rules, nor even increased power in the language, though that alone is good; but those results which are not to be measured in examinations—awakened intelligence, interest and enjoyment, freedom and spontaneity of thought and speech, and power to express. If a whole class can pass satisfactorily on an examination paper there is reason to be glad; but if that class is full of life and energy; if it answers a Latin question with a ready Latin answer; if it frequently makes spontaneous experiments in using the language, utilising and adapting the vocabulary and idiom of its recent reading; if it speaks and reads distinctly

and with understanding; if, in short, it gives evidence of life and development, there is reason for the educationist to be still more glad.

The Direct Method is a wonderful eye-opener to the teacher, an effective remedy for staleness; for the opportunity which it gives to the child for self-expression also gives many a revelation to his guide.

At the end of three years the pupil should have covered, in accident and syntax, all the ground that is essential to the understanding of a Latin author, and should have achieved a vocabulary sufficient for understanding any simple passage; he should be able to read the easier authors with understanding, and to speak in Latin about what he reads; he should be able to express himself, orally or in writing, in good and accurate, though necessarily simple, Latin; his speech should be clear and distinct; he should enjoy his work and show spontaneity in it, and if his school life is to end here, he should have gained enough appreciation of the language and life of the Romans to feel that his time has not been wasted among them, and to carry away with him a desire to know more about them.

If this has been achieved his three years' Latin course has been of educational worth.

THE PSYCHOLOGY OF ADULT READING.¹

By F. SMITH, B.A., B.Sc.

THIS paper is a very brief summary of our knowledge of the adult reading process, as investigated by many psychologists. The material has been collected from the sources indicated in the following list:—

Prof. Huey's "Psychology and Pedagogy of Reading" (Macmillan Company) gives a bibliography which is complete to 1907. More recent publications are:—

C. F. Wiegand: "Untersuchung über die Bedeutung der Gestaltqualität für die Erkennung von Wörtern."—*Zeits. f. Psychol.*, Bd. 48, 1908.

Dodge: "Eine experimentelle Studie der visuellen Fixation."—*Zeits. f. Psychol.*, Bd. 52, 1909.

Beer: "Die Abhängigkeit der Lesezeit von psychol. und sprachlichen Faktoren."—*Zeits. f. Psychol.*, Bd. 56, 1910.

F. C. Dockeray: "The Span of Vision in Reading, and the Legibility of Letters."—*J. of Ed. Psychol.*, i., 1910.

A. Prandtl: *Zeits. f. Psychol.*, Bd. 60, 1911.

I have arranged the matter under six heads: 1. *Speed of Reading.*—Many observers have found large differences in the speed at which individuals read: a very quick reader

¹ A paper read to the Educational Science Section of the British Association at Dundee, September 9th, 1912.

may read four times as rapidly as a slow one, and in rare cases the difference is even greater.

Rapid readers are generally able to give a better account of what they have read than are slow ones, though Romanes found that among the subjects he tested, several slow readers were very distinguished scholars. Quick reading, therefore, saves time and does not decrease comprehension.

The rate of reading seems to be determined largely by the subject's habitual quickness of perception, as tested by other material; but training, practice, and other factors are important. Thus, quite recently, Prandtl has found that serious texts are read more slowly than cheerful ones, and that even the suggestion that the text is bright or sad will shorten or lengthen the reading time as the case may be. Also, Beer has recently shown that the reading time of a piece of prose is lengthened as the number of monosyllables in it increases, whilst the total length remains the same.

Investigators agree that it is both possible and desirable to increase a person's speed of reading, and that perhaps the wisest economy would be to have a speed varying with the importance and difficulty of the subject-matter.

Lip movement is generally a hindrance to rapid reading, though in rare cases it has been known to accompany it. When non-lipmovers are told to move their lips as they read, their speed is sensibly decreased. Even imagined pronunciation seems to accompany slow reading for the most part.

2. *The Work of the Eyes.*—The eyes move forward, in reading, in a series of quick leaps, separated by rest periods. The return to the beginning of the next line is generally made in one unbroken movement. Dodge, in a line 83 mm. long, found that he made from three to five pauses when reading it; and Erdmann, in a line 122 mm. long, made from five to seven pauses. Dearborn found that eight subjects made from three to seven pauses in reading an ordinary newspaper line.

The first pause is within the line, and the last is still further from the end, so that the eye usually traverses only about eighty per cent. of the line length, though this amount varies according to the reading matter.

The first fixation is the longest, and Dearborn suggests that this extra time is used in a general glance at the whole line. Dodge, in his last paper, supports this, and suggests that the reading pause may be a relatively late moment in the total perception of the words: that the process actually begins before the line or word is reached.

The time occupied by one of the forward movements is given by Dodge as 0.023 second, and this is confirmed by Dearborn. The time

is fairly regular, however quick the reading, and does not seem to be under direct voluntary control.

The time occupied by a reading pause, on the other hand, varies so much that an average is misleading. Dearborn found it varied from 0.16 to 0.4 second. Hence we see that the main part of the reading time is spent in fixed looks at certain parts of the page.

When subjects are asked to read as quickly as possible, it is found that they decrease the number of pauses and the duration of them, but the speed of the movements is not changed. Fast readers thus perform less eye work than slow ones, and their eyes move through larger angles, which are probably less tiring than small angle movements.

Dearborn has emphasised very insistently the important rôle played by motor habits in the work of the eyes. He found that some subjects soon fell into a striking regularity, both as to the number of pauses in each line and the uniformity of time distribution. Rapid readers especially have the advantage in this respect, and indeed Dearborn ascribes rapid reading to the facility with which such motor habits are developed. *He found that long lines, or lines of irregular length, interfered with this habit formation, because caution was introduced and refixations were often necessary at the beginning of the line.*

The problem as to what occurs during the rapid eye movements has been long disputed. The movement is quick enough to cause fusion of the black and white stimuli, but we are certainly unconscious of any such fusion. Either we ignore the faint sensations that come to us during the eye movements, just as we ignore many faint sensations in ordinary life, or else we get some benefit from them and are the better prepared for the printed symbols at the next pause.

Dodge, in a long paper published recently, shows that, during the so-called pauses, ceaseless small eye movements take place which vary with individuals and even with different eyes of the same individual. Hence he regards the traditional theory of a functional centre of the retina to which all sight processes are referred, or can be referred, as untenable. The functional centre may be a larger or smaller surface, according to the character of the object of sight.

3. *The Area of Fixation.*—The amount read at each pause varies largely with individuals, and has been found to be as small as five and as large as fifteen letter spaces. The amount is roughly correlated with individual differences in the rate of reading, as fewer pauses are made by rapid readers. The amount read also varies with the nature of the subject-

matter: prepositional phrases, substantives with qualifying adjectives, and series of words with a rhythmic swing are easy to read, and large areas are read in a pause when the reading material possesses any of these characteristics. Connective words, unusual and difficult words give more trouble and require more attention. Letters and words which are frequently and regularly found together tend to form one complex whole, and a few cues are then quite sufficient to excite the phrase.

The area of clearest perception is most often located in the first third of the total area perceived, though grammatical connections interfere with this. But it is certainly easier to fill in the area on the right mentally than the one on the left, because such mental factors as expectation and suggestion operate more effectively in the former.

The area of clear perception, as revealed by letters in nonsense arrangement, does not seem to cover more than six or seven letter spaces. Erdmann and Dodge found that not more than five such letters could be perceived simultaneously, though when six or seven were exposed the first and last were correctly returned, whilst the intervening ones, if they had been perceived at all, were forgotten. Hence they conclude that nothing is clearly seen outside this maximum of seven. Now when letters stand in word order, it is found that twenty and more can be perceived in an exposure short enough to exclude eye movement. We may infer, therefore, that the majority of such letters are filled in mentally by suggestion, expectation, association, &c. The fact that the amount read at each pause varies with the nature of the reading material gives additional probability to this conclusion.

Hence we may say that it is usual in a fixation pause to read more than stands in the area of clear perception, but less than the maximum that is possible.

4. *The Act of Perception.*—It is well known that we are able to read print from which the lower half of each line has been removed. Huey also found that when he divided each word of a passage into two equal parts, and put all the left-hand halves together and all the right-hand halves, it was easier to read the first passage so made than the second. These facts show that the reading process may still go on when the stimulus has been considerably reduced, and also that the value of the stimulus is not equally distributed. The problem as to what actually sets up the perception act in adult reading is the most disputed of all. Cattell, Erdmann and Dodge, Huey and Dearborn argue that each word has a characteristic "total form" which is sufficient to set up recog-

nition without any clear discrimination of the letters. The main facts which they advance in support of their position are the following:—(1) The time taken for the recognition of single letters is longer than that required for short familiar words of four letters. (2) When we read a series of four-letter words and then a similar series of eight-letter words, the time taken in the second case is very little longer than in the first. (3) Words can be read at distances where the single letters composing them are no longer distinguishable. (4) Words which have similar total forms, like physiological and psychological, are the most usually confused.

On the other hand, Goldscheider and Müller, Zeitler, Messmer, Schumann and Wiegand all favour the importance of certain letters and letter-complexes which are called "dominant," and these are held to set up recognition. Their chief arguments are: (1) that when an incomplete series of letters, the skeleton of a word, is exposed, an optical memory image of the whole word is called up only when the dominating letters form the skeleton. In these cases absent or disregarded letters are filled in subjectively. (2) When words are exposed at a very great distance, and gradually brought nearer the subject, the reproduction of the acoustic motor image of the word seems to be brought about in the first place by single letters, though the total form also operates in a few cases.

In other matters these investigators disagree among themselves. Goldscheider and Müller insist on the revival of the sound image, but Zeitler thinks the visual image comes directly. Messmer distinguishes two types of readers: an objective and a subjective, who lay importance on the dominant letters or the total form respectively, whereas Wiegand, working with the same subjects as Messmer, showed that the characteristics of each so-called type could be found in all subjects, according to whether their attention were turned to a large or small field.

Wundt criticised tachistoscopic experiments in a dark room, because the positive after-image following the exposure was long enough to allow words to be apprehended, not simultaneously, but successively, by the attention. But Zeitler worked with a bright adapted eye and an exposure of one-hundredth of a second. Dodge's recent criticism of very short exposure experiments seems to be more important. He argues that perception with a duration of exposition very near the time threshold must be something wholly different from normal sight perception. It may create new conditions which are taken for the real process. He thinks Zeitler's hypothesis of successive apprehension

is due to conditions artificially created by the experiment, and Messmer's more so.

I think this objection may also be urged against the exposure of words at distances too great to distinguish the single letters, as Erdmann and Dodge did, and as Wiegand has done more recently.

Huey concludes, as did Goldscheider and Müller, that sometimes the total form is sufficient for recognition, at other times a dominant complex is the first factor. But in either case there is only one total act of recognition inside which the dominant parts or the total form occupy a greater prominence in consciousness. The tendency is towards recognition in larger and larger units, with occasional descents to single-word recognition, or even letter recognition.

5. *Inner Speech.*—The importance of inner speech in reading is not questioned by any investigator. It is probably present in most cases as audito-motor imagery, since these two aspects are usually found together and are often hard to distinguish from each other. It is probably incomplete in practised readers, as a part may come to stand for the whole.

Poor readers, as we know, often use an actual whisper in reading. Huey thinks mental pronunciation very common, and in his thirty subjects purely visual reading was not established for any, though his tests were not conclusive. Only a few actually used lip movement: the mental pronunciation was localised somewhere "up in the head."

Quantz found lip movement universal in children, rare in adults. He thinks it is a natural habit, and that adults have overcome it by practice.

Our speech habit must play a predominant part in our mental life, for it is developed not only by speaking, but also by reading and thinking, since the audito-motor mechanism of speech is called into play by all these activities. The range of speech is much greater than that of vision, and this range is very much enlarged by the associative habits of language, by which large groups of words are used constantly in the same order. Hence inner speech helps reading, and gives us power in dealing with the printed matter in large unitary wholes.

The inner utterance does not accompany the visual recognition. Quantz found that this eve-voice separation was 7.4 words at the beginning of a line, 5.1 words in the middle, and 3.8 words at the end. He suggests that the consciousness of meaning accompanies not the visual recognition, but the inner utterance.

Huey thinks there is also a faint sound of the word suggested either with or closely following the visual recognition. This serves to hold the word in consciousness until there are

enough data present to give the unitary utterance of the sentence. The value of this holding in suspension is that the attention may wander to and fro over the different parts until enough are present to give the unitary utterance of the sentence.

6. *Meaning.*—The problem of how meaning comes to us from the printed symbol is one of general psychology, and has received little attention from the investigators whose work I have reviewed. Huey is the only one who devised experiments in order to throw some light on this question. He exposed the single words of a reading passage at intervals of four seconds per word, so that the subject could note his experiences. He found that the visual form of the word was first recognised as familiar, and then the word was mentally pronounced, or a feeling was evoked of a vaguely suggested word or phrase. Connective words did not arouse imagery and gave very few associations; occasionally they gave expectation of the following words. The amount of imagery varied with individuals, and auditory and motor elements predominated.

In order to bring the conditions nearer actual reading he next fastened words on to a continuous strip, so that previously exposed words were still seen when the next came into view. Under these conditions he found that associations were less varied but more numerous. Feelings of expectancy were more prominent, especially when once the general trend of the passage had been caught. After the mental pronunciation of the word there was a filling out of the sentence, or where this was impossible there was a strong forward push towards what was still to come. Connective words gave few associations, and meaning was felt as belonging to larger wholes: to sentences and other large units. The words served as the means of reaching a place where a new meaning would emerge.

The consciousness of meaning belongs in the main to the feelings. James says we ought to speak of a feeling of "and," and of "if," and of "but," just as we speak of a feeling of "cold." The words are relations that we feel between the larger objects of thought. But this is true not only for connective words but also for substantives, where some sensory image is likely to occur, and careful analysis shows that we very rarely separate word meaning and word utterance. When we utter a word it has for each of us a special feeling which is significant.

In reading, Huey distinguishes what he calls a feeling of "meaning-in-itself," *i.e.*, the consciousness of grammatical sense as a passage is read, distinguishing it from mere non-sense. Besides this there are total meanings

belonging to sentences or to unitary parts of sentences: these dominate the particular words which stand in fixed relations to it. With words, too, there is probably some feeling-meaning which is evoked by the visual form.

Such are the main results achieved by modern investigators. They are already considerable in extent, although incomplete in many ways, and their application to pedagogy is obvious at many points.

THE METHODS OF TEACHING READING IN THE EARLY STAGES.¹

By BENJAMIN DUMVILLE, M.A.

Master of Method and Lecturer on Education in the L.C.C. Islington Day Training College.

THE ALPHABETIC METHOD was the old-fashioned method. It consisted in causing the pupils to learn the usual names of the letters of the alphabet, and then requiring them to spell syllables and words. Thus such a word as *mat* would be presented to them. The teacher would point to the letters, requiring the pupils to give their names, and to finish with the sound of the whole word: *em-ay-tee . . . mat*. This would be done a number of times, after which the pupils would be expected to say *mat* at once, without the need of the preliminary spelling.

The method has been severely criticised. It has been pointed out that there is little connection between the names of the letters and the sounded word; *em-ay-tee* gives *em-ay-tee*, not *mat*. And, conversely, it is impossible to obtain the letters from the sounded word. Stanley Hall, in his little book on "How to Teach Reading," refers to an old poem dealing with a teacher and a pupil who—presumably without a dictionary—undertook to settle the spelling of a word by a fight, in which the teacher was killed.

Still, there was more in the method than many imagine. Most of the older generations, who were brought up on it, learned to read without any serious difficulty. And the wits of the sluggish child were sometimes quickened by ingenious devices. Thus Matthew Prior tells us—

To Master John the English maid
A horn book gives of gingerbread,
And that the child may learn the better,
As he can name he eats the letter;
Proceeding thus with vast delight,
He spells and gnaws from left to right.

There is, too, a phonic germ in this alphabetic method. The names of the consonants

—with the exception of *h*—do, at any rate, contain their powers. And the varying sounds of the vowel letters were gradually acquired, more or less subconsciously, by repetition of different words containing them. The arrangement of the syllables in the old horn books—*ab, eb, ib, ob, ub; ac, ec, ic, oc, uc*, and so forth—indicates that there was a definite intention of leading the child to recognise that the letters have certain sounds or powers which, put together, constitute words. Now, when this is done *consciously* or *explicitly*, we have the PHONIC METHOD—the method which holds the field in most English schools at the present time.

The Phonic Method does not need the ordinary *names* of the letters. It requires a knowledge of their *sounds* or *powers*. And some teachers prefer to avoid confusion by keeping the names entirely out of the matter during the early stages. The children have their attention directed to the powers from the beginning, and they learn to isolate each sound, and to associate it with the form of the letter corresponding to it. Then easy words are presented to them, they give the power of each letter, and finally unite these sounds to form the word.

This seems a very logical mode of procedure. It has been claimed for it that it enables the children to attack new words, which they are able to make out merely by putting together the sounds of the various letters. It has been further asserted that the method is a great help in spelling. Cold water has been thrown on these claims by pointing out that our alphabet is both defective and redundant. *If* we had one sound for each letter, and one letter for every sound, the claims might be substantiated. But we have not. This, of course, is admitted by all "phonic" enthusiasts. But some of them assert in reply that, at any rate, three-quarters of our words are regular in spelling.

Now such statements as this are often accepted without examination. If anyone will take the trouble to examine our words carefully, he will find that three-quarters of them are *irregular* in spelling. As an illustration of this, I took one of my child's story-books, opened it at random, and selected the first paragraph which caught my eye. I picked out all the regularly-spelt words, and found that they were considerably less than a quarter of the whole.

Then there is the question of accentuation, which, in English, plays havoc with our pronunciation of words, and which is not indicated in ordinary print. If I were to displace the strong accent in any of our common words, they would be almost unrecognisable.

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

Thus, *interesting*, *beautiful*, and *October*, if pronounced *inter'-esting*, *beauti'-ful*, and *Oct'-ober*, would be sounded quite differently. And such difficulties are not confined to long words. *The*, *an*, *for*, *by*—in fact, nearly all our short words—vary greatly in pronunciation according to their position and importance. There is the further difficulty that many words, though always spelt in the same way, are pronounced differently in different parts of the country, and often by different persons in the same district.

In view of such facts, it is not surprising that the claims of the Phonic Method break down in practice. Few really unfamiliar words can be deciphered by beginners with certainty. And the misspelt notes which illiterate parents send to the teachers to excuse their children's absences, being usually far more phonetic in their spelling than orthodox epistles, are sufficient evidence that dependence on the powers of the letters is not safe in matters of orthography.

Latterly, a new variety of the Phonic Method has come into vogue in England—Miss Dale's Method. In its essentials, this method has had prototypes both in Germany and America. Both Meumann and Huey describe similar methods. The chief point of this new method—besides the most interesting style in which Miss Dale works it out—is the introduction of *phonetics*, *i. e.*, of a study of the positions of the vocal organs which are necessary in producing the various sounds. The children not only analyse words into their constituent sounds *by ear*—as they must do under any phonic system—but they learn how the tongue, lips, teeth, &c., are placed to produce those sounds. And they often draw sketches of the mouth-positions.

It is claimed that with this method very distinct and clear articulation is obtained. Now, attention to the positions of the vocal organs certainly does tend to more care in producing the sounds of speech. But it is equally certain that such attention is not an essential of good speech. It may, indeed, be a hindrance. Some authorities believe that stuttering "is largely due to faulty or misguided methods of instruction in speaking and reading." As Huey says, "Any analytic work of this sort, done before the speech habits have well set, brings in its train the abnormal functionings that always attend the attempts of consciousness to tamper with processes which are meant to function automatically."² We certainly want the child to acquire clear and correct speech. But this is most frequently obtained by imitation of good models without any particular concern as to

how the organs are placed. Many of our best orators and reciters know nothing about the way in which the various sounds are formed in the mouth.

•A distinguished French phonetician once selected the man whom he believed to speak the most carefully and distinctly of all his friends. "What do you do when you pronounce *ba*?" he asked. His friend pronounced the syllable, attended to the movements of his mouth, and replied: "I shut my mouth and then I open it." "And what do you do when you pronounce *pa*?" was the next question. He tried anew, and replied: "The same thing; I shut my mouth and then I open it." "And what for *ma*?" was the last question. "Why, it's the same thing again; I shut my mouth and then I open it," was the rejoinder. Similar results could be obtained in thousands of cases.

It is not at all necessary for correct speech to know the various mouth-positions. This does not mean that the *teacher* should not be acquainted with phonetics. Since he or she has sometimes to deal with defects and modifications of speech, a knowledge of the vocal mechanism will be helpful in directing the speech movements of some of the pupils. But the children themselves need not know all these things. It is fairly certain that such analytic knowledge of words is not the kind of thing which is suitable for infants, however interesting Miss Dale succeeds in making it. Many adults, indeed, find it difficult to acquire, and some seem never to master it.

Good pronunciation is most important. And special attention is necessary to secure it in the elementary school because so many children come from homes in which careless speech is the rule. But it is open to question whether the reading lesson—especially the *early* reading lesson—is the best time for dealing with it. Teachers, as well as scholars, have been known to be very careful in their speech during the *reading* lesson, and very careless at other times. Now, if we could implant in the children the habit of careful articulation at *all* times, we should find that the greater includes the less, and there would be no need for such special care during reading.

There is an additional reason why this attention to pronunciation should not be given during the *early* reading lessons. The child already uses words and understands their meanings. All that learning to read, in its most elementary stage, need involve is practice in the perception of the printed forms *as wholes*, so that immediate discrimination and recognition of these is possible, and, concurrently with this practice—and closely connected with it—the association of the printed

² "Psychology and Pedagogy of Reading," p. 399.

forms with the sounds and meanings *with which the child is already familiar*. Now, if this work is to go forward smoothly and rapidly, it must not be complicated by attention to details which are not absolutely necessary. Our motto should be—*One thing at a time*. The child can already talk. And, *from the point of view of acquiring this power of word-recognition*, it does not matter what sort of pronunciation he possesses.

Reverting now to the bare Phonic Method, as previously described, one might still hold that, stripped of unessential *phonetic* paraphernalia, this method is the best for introducing the common regularly-spelt words to the child. But, even if all our words were spelt regularly, it would be found that we do not learn to *read* by the Phonic Method. We can learn to *decipher* words by it. But deciphering is a very different thing from reading. Reading involves, above all things, gathering the *meaning*, and, in so far as the child is absorbed in deciphering unfamiliar words, he suspends his reading. This deciphering of "new" words, then, cannot be called reading. At the best, it can only be called a preparation for that rapid recognition of words which makes reading possible.

It is worth while to quote here some words of Huey, one of the most famous among American investigators of the reading process. He says that "until the insidious thought of reading as word-pronouncing is well worked out of our heads, it is well to place the emphasis strongly where it really belongs, on reading as *thought-getting*, independently of expression."³

"It is wise," he goes on, "that reading should be rather rapid from the first—that is, that the particular sentences should be thought at the child's ordinary rate of thinking and feeling. Much halting over the meaning and utterance of particular forms prevents this natural movement of thought and feeling, and injures the habit of thinking as well as of reading."⁴

And he adds: "If the child must stop to make the letter-sounds focal, he must necessarily interrupt the natural rate of thinking sentence-meanings, to say nothing of his forgetting all about meanings of any sort in his concern about the sounds as such. If the words of the page are not already familiar, and their meanings cannot be suggested by their context or by an illustration, it is simply obstructive of habits of natural reading and speaking to interrupt the reading with thoughts of letter-sounds, which are never normally and focally present in actual reading."⁵

Some, however, will assert that this deciphering of words is not only the best preparation for subsequent reading, but that it also forms a valuable support to the true reading process whenever that process is in danger of breaking down before unfamiliar words, as it is so liable to do in the early stages.

As to the first of these points, the idea seems to be that the child should begin by laboriously putting together the sounds of the various letters to form the word, and that he goes on doing this more and more quickly and easily until at last it becomes practically instantaneous. This, however, is not the case. The essential thing for *reading* is that the printed word (as a whole) should call up in the mind the sounded word (as a whole), together, of course, with its meaning. And this can be arrived at *directly*, *i.e.*, by attending to the *general* form of the printed word, and producing in conjunction with it the sound-compound which is already familiar. In this way, the two become associated in the mind so firmly that one inevitably calls up the other. *And this is what has to be done eventually, even when the Phonic Method is adopted*. But it is done more slowly and laboriously, because the chief share of attention is given to something else—to the individual letters and their powers. Many dull children cannot see the wood for the trees; they lose themselves among the letters of the word, and fail to get a good general impression of the whole. Yet it is the general look of the whole, the *Gesamtform*, as some Germans call it, which is the essential thing for reading. The word must come to be regarded as a sort of picture, to be recognised instantaneously—*i.e.*, by LOOK-AND-SAY.

The point is so important that it deserves further elucidation. Let us outline the process through which a child struggles in attacking a word according to the Phonic Method. There are three well-marked stages—

(1) The printed word;

(2) Analysis of this into letters, recall of the powers of these letters (due to associations previously formed), and synthesis of these sounds to form—

(3) The sounded word.

As this process is repeated, the middle stage becomes more and more easy, so that the essential connection, that between the printed word and the sounded word, gets more attention. This necessary association, then, is bound to be made in the long run, even when the Phonic Method is adopted. But in these circumstances, it is considerably hampered by attention to the middle stage. Thus we can say that children brought up on the

³ Huey, *op. cit.*, p. 350-1.

⁴ *Ibid.*

⁵ *Ibid.*

Phonic Method really come at last, *in spite of* that method, to read by Look-and-Say.

As to the second point advanced by supporters of the Phonic Method, viz., that the power to decipher words is a valuable support to reading proper, we have to note that it cannot be a support to reading until reading itself begins, and this can only proceed, as we have already seen, by Look-and-Say. In the early stages of the Phonic Method, when practically every word has to be deciphered, the attention of the child is so occupied by this process that little, if any, *reading* can occur. The process is little more than "barking at print." It is only when reading can already, to a large extent, take place that the support of this power to decipher is of any value. Then, at length, it is of undoubted assistance. And it might at first sight appear that the Look-and-Say Method labours under a signal disadvantage in this respect.

But, in the first place, it should be observed that in the early stages, when this assistance is most necessary, the teacher is always there to tell the words which cannot be read, if only he or she would have the sense to do so, and in later lessons these words can gradually be learned by Look-and-Say. For, if they are common words, they will continually be recurring. If, however, they are uncommon words, there is no need to worry over them, since they are not likely to occur again for some time.

Further, it has been found by experiment that the power to decipher new words gradually develops, even when the Look-and-Say Method is exclusively adopted. A more or less subconscious process of analysis takes place, by reason of which the children gradually come to distinguish the letters and their powers, and as a consequence of which new words can ultimately be deciphered. This process can, of course, be accelerated, at the discretion of the teacher, by some amount of definite and conscious direction of attention to the letters and their powers.

It remains to point out another, and most serious, disadvantage involved in the Phonic Method. When this method is systematically adopted, the regularly-spelt words are attacked first. And the early primers consist of lessons specially constructed to contain such words. Thus the infants who have toiled through Miss Dale's "Steps to Reading," which consists of isolated words till the last page is reached, are rewarded for their efforts by such "literature" as—

Pat had a fat rat.
The rat hid in a sack;
Pat ran to the sack
And got his rat.

Now, however richly such prose is illustrated by pictures, and however keen the teacher may be to make the work as pleasant as possible, it is obvious to every intelligent child that such sentences are nothing but a rearrangement of the words already learned, and tell us nothing worth hearing. In Sonnenschein's books, "Reading in a Twelve-month," the same kind of thing is carried to alarming extremes. Lesson after lesson consists of a number of words of similar construction, followed by sentences which contain those words and are absolutely without interest to anybody. Such arrangements as these will go far to kill any budding love of literature. It should be our aim to get the child to appreciate the value of learning to read as early as possible, and we should introduce him to good literature, suitable for his age, as soon as we can.

With the *Look-and-Say Method* there are no limitations of the kind just indicated. The irregularity of spelling or the length of a word is no bar to its recognition as a whole. The only limitation that need be imposed is that the early literature should consist of words which the child understands when he hears them in daily life. And there is a great deal of such literature which little children can appreciate and enjoy. Fairy tales, simple stories of adventure, especially those involving plenty of action, can be found in abundance.

In criticising the Phonic Method, we have been led into a tolerably complete description of the essential features of the Look-and-Say Method. It remains to say a word on that form of it which is known as the "Sentence" Method. This is merely a variety of the method in which whole sentences are presented to the child from the first. It rests on the principle that the unit of language is the sentence—the expression of a thought in words. But since many of a child's early utterances are condensed into single words, there seems no great objection to beginning the first lessons with words only. Personally, I prefer beginning with the names of the pupils. These are most interesting to the children, who can easily be induced to recognise one another's names. In this way, too, the exact function of a word is clearly understood. Then common objects in the immediate environment can be named and labelled. Adjectives and verbs denoting simple actions can be introduced, and then short sentences can be constructed. A discussion of these matters, however, would lead us into the whole question of procedure, which, though extremely interesting and important, is too detailed to allow of treatment here.

The examination of results shows that there is much more rapid progress in the early stages by Look-and-Say than by Phonic methods.

Mr. E. J. Gill, of the University of Sheffield, obtained the following *time* results with two unseen extracts (called A and B respectively) in three schools (X being a "Dale" school, Y a more ordinary "Phonic" school, and Z a "Look-and-Say" school of the "Sentence Method" type).

Extract ...	Class average time				Mean variation			
	A		B		A		B	
	Min.	Sec.	Min.	Sec.	Min.	Sec.	Min.	Sec.
School X ..	1	49	1	46 $\frac{3}{4}$	0	53 $\frac{1}{2}$	0	49 $\frac{1}{2}$
School Y ...	1	28 $\frac{1}{2}$	1	42 $\frac{3}{4}$	0	29 $\frac{3}{4}$	0	39 $\frac{3}{4}$
School Z ..	0	37 $\frac{1}{2}$	0	39 $\frac{3}{4}$	0	12 $\frac{3}{4}$	0	13 $\frac{1}{2}$

I myself obtained results, both with respect to *time* and *mistakes*, in an experiment in learning to read with a new alphabet (that of the *Association Phonétique Internationale*) conducted with older children. Extract A contained none but words previously introduced to the children. Extract B contained many new combinations of the same sounds, and, if no analysis had taken place in the minds of the "Look-and-Say" pupils, would have rendered the results of the "Look-and-Say" section hopelessly inferior to those of the "Phonic" section. The following are the results:—

Standard VII. of an Elementary School.

(Thirty-six pupils divided into two equal sections.)

Time devoted to learning in both cases, thirty minutes.

Section tested ↓	Extract A				Extract B			
	Average time in seconds	Mean variation	Average number of mistakes	Mean variation	Average time in seconds	Mean variation	Average number of mistakes	Mean variation
Phonic ...	189 $\frac{3}{4}$	42 $\frac{1}{4}$	9	3.1	139 $\frac{2}{3}$	39 $\frac{3}{4}$	9	1.1
Look-and-Say	127 $\frac{1}{2}$	30 $\frac{3}{4}$	7.2	3.6	97	21 $\frac{3}{4}$	8.3	2.4

Form VI. of a Secondary School.

(Twenty-five pupils divided equally, the odd one being put in with the Look-and-Say section.)

Time devoted to learning in both cases, twenty-five minutes.

Section tested ↓	Extract A				Extract B			
	Average time in seconds	Mean variation	Average number of mistakes	Mean variation	Average time in seconds	Mean variation	Average number of mistakes	Mean variation
Phonic ...	60 $\frac{3}{4}$	11 $\frac{3}{4}$	2.6	1.9	43	6 $\frac{1}{2}$	2.7	1.2
Look-and-Say	48 $\frac{1}{2}$	8	1.8	1.2	46 $\frac{2}{3}$	11 $\frac{3}{4}$	3.8	1.8

Anyone acquainted with the symbols of the *Association Phonétique Internationale* will agree that they offer a new problem of learn-

ing to read. The members of the Look-and-Say section were each given a list of all the words occurring in the text, printed in phonetic transcript, in irregular order, and with the ordinary spelling opposite. They were told to learn the new forms as *wholes*, going over them again and again in order to be able to recognise and name them at a glance. They were also told the nature of the test awaiting them, and were recommended to continue running over the words in order to increase their speed. The Phonic section were also told the nature of the test awaiting them. But they were prepared for it by having the powers or sounds of the symbols imparted to them. It was pointed out that many of the symbols would be the same as in ordinary spelling, but that the new ones required special attention. And a table indicating clearly the sound corresponding to each new symbol, and giving a sample word in phonetic transcript containing the symbol in question, was handed to each pupil. *Before* their learning began, the arrangement of the sheet was carefully explained, so that no time would be lost in understanding it; and, during their learning, I was present the whole time to help with the slightest difficulty which any individual might find. The need of speed in deciphering the words was impressed upon them as strongly as possible. Further, after they had been at work about ten minutes, the same sheets were given to them as the Look-and-Say section had already received. They were instructed, however, to use them for the purpose of practising and testing their powers of deciphering.

After both sections had been at work for about a quarter of an hour, a short prose extract, consisting entirely of a selection of the words in phonetic script already dealt with, was given them for practice in view of the final test.

Each child was tested individually. The necessity for speed was the chief thing insisted upon. Now since, on account of the short time devoted to learning, no one could be expected to have a thorough mastery of the words, it was inevitable that there would be many mistakes. Further, if the plan had been to keep a child at a difficult word until he named it aright, some would never have got to the end, and many would have spoilt their times to such an extent that they would have been useless as criteria of general proficiency. It was consequently decided that when an individual made a mistake, or seemed hopelessly stuck, he should be told the right word and allowed to proceed, one mistake being counted against him. The times were taken by stop-watch.

The less striking character of the differences in the case of the secondary-school pupils is probably due to the higher stage of development of these young people. The immense difference between the whole of these secondary-school results and those in the elementary school indicates the same fundamental fact. The "Phonic" pupils, probably, although introduced to the words on phonic lines, soon began to learn them by Look-and-Say. In short, they profited to the full by their knowledge of the powers of the symbols, thus being able to attack new words more readily than the others; but at the same time, with their great experience in reading and study, they proceeded to learn the words *as wholes*. There is still, however, a decided superiority of the Look-and-Say section in dealing with extract A. And it must be kept in mind that reading, in normal circumstances, approximates to the work with this extract: *i.e.*, it involves dealing with words with which we are already familiar.

Space will permit me to refer to only one other point. It is alleged that with the Look-and-Say Method imperfect perception of words often occurs. In particular, words of similar appearance, like *was* and *saw*, *on* and *no*, are often confused. Now, as we have already noted, the Phonic Method also is not free from defect in this respect. The child working according to that method is sometimes so engaged with the letters that he fails to get a good general view of the word. The Look-and-Say Method errs, however, at the opposite extreme. The view of the word is sometimes too general, so that small differences between two otherwise similar words pass unnoticed. One remedy is to introduce in such cases a little of the analytic attention of the Phonic Method. As Stanley Hall points out in his little work on reading already referred to, "The stated use of one method does not preclude the use of any, and perhaps all, the others." But another remedy lies in promoting sharper perception. One reason why children confuse similar words is that they never look at each of them with full attention. In a great many cases, when the meaning is uppermost in the mind, it is not necessary to do so. The context guides us. But even where the child finds it necessary to look at a word, it is doubtful whether he concentrates his attention on it so completely as an adult. He is probably disturbed much more than the latter by what is seen in indirect vision. As Meumann says, "It requires a great effort of will to avoid this distraction, and not every child is in a condition to produce it."

Whatever, then, helps the child to concentrate his attention on individual words and

phrases is of great value. Some of our English inspectors have lately been condemning pointing by young children when reading from their books. But this is of some assistance. The chief defect in it is that the end of the finger is not sufficiently sharp. And Meumann recommends a pointed stick of wood. He also refers to what he calls a *Leseschieber*, a piece of cardboard with a long slit, which only allows one line to be seen at a time. This can be used in a more or less tachistoscopic manner. It helped to suggest to me my own form of apparatus. That apparatus is for use with the blackboard before the children are ready for books, and for the occasional exercises which can be taken at any time when Look-and-Say is adopted. The pieces of poetry, nursery rhymes, and so forth, which the children enjoy, and which they learn to repeat, can be printed on the blackboard, so that the children can *read* them, as well as repeat them by ear. And when they have read them through once or twice, their sharpness of perception can be improved and tested by tachistoscopic exercises. The crude instrument which I have devised provides for eight lines of print, and for each line there are two covering shutters, one for each half. The shutters can be moved rapidly backwards and forwards, thus exposing for longer or shorter intervals any word or words in any portion of the piece. This plan of showing isolated words and phrases for short intervals not only stimulates the children to look sharply at them, but it has the further merit, as I have already pointed out, of removing the disturbances due to indirect vision.

It must be clearly understood that this is only a small addition to the procedure according to the Look-and-Say Method. Of the whole of that procedure, I have been unable to speak, though it is a most interesting topic. I have been forced to confine myself to the theoretical justifications of the method.

HOW CHILDREN LEARN TO READ.¹

By BARBARA FOXLEY, M.A.

CHILDREN are taught to read in one of three ways, the spelling method, the phonic method, or the Look and Say method. The spelling method is rapidly disappearing; if we meet with it in school it is usually through the well-meant but mistaken efforts of parents or grandparents to supplement the school lessons. It is generally agreed that it was slow and tedious; older teachers sometimes assert that it produced good spellers, but this is not borne out by investigation. The

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

phonic method is generally used in England, France, and Germany. In America the Look and Say method has been greatly developed of late years, and it is beginning to make its way in England.

With the introduction of compulsory school attendance the problem of the reading lesson for large classes became one of great importance. At first the spelling method was generally used, and attempts were made to make it more attractive by the use of pictures, and by the choice of easy words and syllables. The rapid spread of Pitman's phonic shorthand set people thinking about the defects of our spelling, and the possibility of reform. Pitman himself hoped to see his system of spelling generally adopted; he published a number of reading primers in that spelling, but with a script very like that in general use, and he claimed that children could be taught to read on his system, that they could even be transferred from his system to the ordinary script, in less time than was usually spent in learning to read. A strong Spelling Reform Society was formed, but the difficulties proved to be very great. The science of phonetics was in its infancy; scholars were agreed that Pitman's rough and ready system was very imperfect, but they could not agree on any other. For a time the Spelling Reform Society published successive numbers of its little magazine, each on a different system advocated by one or other of its various members. The lack of agreement among scholars was not the only difficulty; the printing and publishing trades were opposed to a movement which seemed to threaten their vested interests, while the general public had nothing but ridicule for the *Phonetic News*, spelt "Fonetik Nuz."

Though this movement failed to introduce phonic spelling, it gave a great impetus to the development of methods of teaching reading based on the analysis of the spoken sounds and their recombination into words. The child is taught not to say the letters f, a, n, fan, but to sound f-a-n, fan. The obvious difficulty is the irregularity of our spelling. How is the child who has learnt to sound the word *on* to deal with *one* or *only*? If you avoid anomalous spellings how can you express yourself in anything remotely resembling English as it is spoken? In spite of these drawbacks the phonic method, under pressure from the training colleges and from H.M. inspectors, has gradually ousted the spelling method from our schools, but its adoption was not the result of any study of the child's needs and aptitudes; indeed, such a point of view with regard to school methods was still uncommon.

But though children are taught to read in this way I have long held the view that the method actually used by the child when it really begins to read is the Look and Say method. I have recently tried to test the validity of my opinion, and the results are more decisive than I expected. After very careful observations I am convinced that few children ever form the habit of sounding the parts of the word at all. Under the direct stimulus of the teacher they will use it, but without that stimulus they do what you and I do in reading a foreign language or a bit of technical English—they follow the sense. By the courtesy of various heads of schools I have been able to watch a number of reading lessons and to note how each child attacked any unfamiliar word. I chose schools where the classes were not unduly large, where the children were from fairly good homes, and where the teachers were trained and experienced, and where they believed in the method they taught.

Even under such favourable conditions I have *never found a single child* who *habitually* attacked an unfamiliar word on the phonic method at any stage in learning to read. Here is a typical example of what I observed, and I could give dozens like it. The children were reading the story of Loki and the Eagle, which was described by the author as "a huge creature." The child read "a huge animal," the teacher checked him, he repeated "a huge animal," and not until the teacher wrote the parts of the word on the blackboard and made him sound them separately and then together did he make any use of the phonic method; and I noticed that when the passage was read again at the close of the lesson, the eagle was still "a huge animal." In many cases the child substituted the word which a good writer would have used for one which the author of the book had chosen as easier to sound. I found two scholars in different classes who tried, in a small number of instances, to sound the parts of an unfamiliar word without being driven to it by the teacher, but neither of them could read intelligibly, and after the lessons the teacher, without any comment from me, remarked that these scholars were exceptionally slow in learning to read.

I ought to say that I have been told by fairly good observers of instances of very clever children who have attacked an isolated word on a poster or in a newspaper heading by the phonic method, but I could get no evidence that they did it habitually, and my contention is that not only do children fail to learn to read by this method, as Mr. Dumville has said, but that they fail to use the method at all,

except under the direct stimulus of the teacher, and that they really learn to read on the Look and Say method, though more slowly than they would learn if not interrupted by the diversion of their attention from the sense to the sound.

I have also observed classes taught on the Look and Say method. I do not like the name; it emphasises what is, in my opinion, a part, and possibly not the most important part, of the method. I should prefer to call it the *Common Sense Method*. This is how it is practised.

In the earliest stage the child is concerned with familiar words. He begins with his own name and the names of his comrades, printed by the teacher or pupil on drawings and other possessions. Then the teacher prints large cards and attaches them to familiar objects, door, window, chair, &c. The child asks what these labels are, and is told they are the names of the various objects. It is a delightful new game to identify the names; a few more are added daily, and very soon the child can read them at sight, and can fetch the right label and put it in its proper place. After a little practice he readily identifies these words when arranged by the teacher on reading sheets. There is no need to keep to short words; the only thing required is that they should be familiar, and that at first they should be names of objects actually present. The next stage, which begins after two or three weeks of naming, deals with *familiar phrases*. The teacher writes on the blackboard such a phrase as "Shut the door." The child recognises the familiar word "door," sees the door is open, and goes and shuts it. "Shut the window," "Shut the book," follow easily. In this way a number of common phrases are learnt, and at this stage most teachers begin to let the pupils write; at first they copy from the blackboard, a little later they begin to write freely.

In watching children taught in this way various points strike the observer.

1. *The rapid progress of the scholars.*—A class of children between five and six, who for five weeks had had a lesson of twenty minutes daily, read at sight such phrases as "Dorothy, go and feed the bird"; they also read with a perfectly easy, natural tone and voice-stress, and immediately carried out the order. They made up sentences for each other to read, using the teacher's printed word cards, but they were not very certain in this work, and I was inclined to think that it was better to leave this work till the children were ready to write on the blackboard. Six months later I saw the same children, in the College Demonstration

School, Cardiff, reading a connected account of the recent visit of the King and Queen, and they read without the slightest difficulty such sentences as "At night they returned to the Royal yacht in the harbour." In the Fielden Demonstration School, Manchester, I saw scholars who had learnt to read on this method, and after about eighteen months they could read at sight almost anything you offered them, and after two years they were reading with excellent expression such poems as "The Forsaken Mermaid."

2. Another conspicuous feature of this method of teaching reading is *the delight which the scholars take in it*. From the first it is related to their existing interests; they see the practical use of it, they can use it themselves. It is possible to connect it with all sorts of active work and play. A child who wants to read will learn readily enough on any method or none, but scholars taught on this way *all* want to read—a result which I have never observed in classes taught on the older methods.

A *third point* to which I should like to direct attention is the ease with which the small words are learnt; there is no formal direction of attention to *the, or, and, &c.*, but they seem to be learnt without any effort; indeed, there is a marked absence of the confusion between small words of similar appearance which is so common among children taught in other ways. This absence of confusion applies to spelling as well as to reading.

Many teachers who begin their classes on the new method think it necessary to introduce phonic analysis later on. I have watched very carefully to see if the scholars showed any sign of needing it. I found no need for it in practice; they continued to attack new words and phrases just as we attack the words and phrases of a new language, by their context. Neither did they try any sound-analysis, as I rather thought they would, as a kind of game. They did make a sort of analysis, but it was visual, not phonic. A child would notice that two words, such as "windy" and "window," *looked alike*. The class took up the idea with delight, and was always on the look-out for similar likenesses, but only in the case of rhymes, which have a great fascination for many children, did there appear to be any interest in the sound.

So far as I can see, the practical teacher should teach reading as a development of expressive speech, an art in which the child is, or should be, proficient, within the limits of its own experience. When the time spent on learning to read is so much less, the task may well be postponed until the child is at least six

years old, to the great advantage of his eyesight. The reading-lesson will be throughout a delight, and an exercise of shrewd common-sense instead of tedious memory drill. From the first the pupils will read for delight and for profit, and I hope they will continue to do so as they get older.

THE FIFTH INTERNATIONAL CONGRESS OF MATHEMATICIANS.

By P. AEBOTT, B.A.

THERE was much at this Congress, held at Cambridge in August last, that was of interest to teachers in secondary schools, though they did not attend in very large numbers. Not only was one of the sections of the Congress devoted to didactic questions, but several important meetings were also held in connection with the reports of the International Commission on the Teaching of Mathematics, which was appointed at the fourth Congress, held at Rome in 1908. The central committee of this Commission consisted of Prof. Klein (president), Sir George Greenhill (vice-president), and Prof. Fehr (secretary). Sub-commissions had also been appointed in most civilised States, and these had been engaged for some time in conducting investigations into the state and conditions of mathematical teaching in their respective countries. The results of these investigations were embodied in a series of 150 reports which were duly presented to the Congress. These reports are not yet complete in all cases; they will eventually number about 200. They can be obtained from Prof. Fehr, University of Geneva, and contain an enormous mass of valuable data, practically constituting a report on the state of mathematical teaching throughout the world, even Japan being represented by two handsome volumes.

The work of the English Commission has taken a somewhat different form from that of other countries. The report consists of a series of forty-three pamphlets, written for the most part by well-known mathematical teachers, and on topics which cover nearly the whole field of mathematical teaching. These papers contain the views of the different authors upon the subjects they deal with, and the report therefore, while of great interest, does not present any connected account of the teaching of mathematics as it exists to-day in this country. The papers are bound in two volumes, and are published by the Board of Education as Volumes 26 and 27 in their "Special Reports on Educational Subjects." The work of getting these papers together has been carried out by Mr. C. S. Jackson, who is to be congratulated on the success he has

attained. It is not possible to deal here with the great mass of interesting matter which is contained in these volumes; it need only be said that all mathematical teachers will find them stimulating and suggestive.

The ground covered by these national reports is so extensive that discussion of them was impossible at the Congress; indeed, it was not possible for any one person to have read them all. Consequently there was a general feeling that the Commission should be re-appointed for the purpose of completing the investigations and of examining the mass of material which has been brought together. If these reports are to be of real service, the information contained in them must be analysed; it must be collated, sifted and tested with the view of discovering what light it throws on the problems of mathematical teaching which still await solution. Accordingly, by a special vote of the Congress the central committee will remain in office for another four years, and, to the great satisfaction of those present, Prof. D. E. Smith, of New York, was added to the committee. The committee is to report to the Sixth Congress, which will be held at Stockholm in 1916, and, in the meantime, is to conduct such investigations and hold such conferences as it thinks fit.

Apart from these national reports, two special reports were presented to the Congress in a form which admitted of their immediate examination, and they formed subjects of discussion at two special meetings arranged for this purpose. The first of these was a report on "Intuition and Experiment in Mathematical Teaching in the Secondary Schools," and was presented by Prof. D. E. Smith. It was the report of a sub-committee charged with the duty of conducting investigations of the character indicated in the title. A questionnaire was prepared by Dr. W. Lietzmann, of Barmen, in order to facilitate the work of securing the necessary data upon which to base a report. The title of the topic, as originally set out in German, was "Anschauung und Experiment im mathematischen Unterricht der höheren Schulen," and this was translated into English as above, and into French as "L'intuition et l'expérience dans l'enseignement mathématique des écoles moyennes." The report contains very little respecting "intuition," and, as was pointed out by Mr. Carson in the course of the discussion, there seems to have been some confusion as to what was really meant by the word.

The English form of the questionnaire was prepared and sent out by Mr. C. Godfrey, and an analysis of the replies was submitted by him to the Congress in a separate paper, which is included in one of the volumes referred to

above. This questionnaire was sent to all schools represented on the Headmasters' Conference and on the Incorporated Association of Headmasters, and replies were received from about two-thirds of them. Questions were asked as to the extent and the classes in which the following subjects were introduced: practical field-work; practical astronomy; descriptive geometry (plan and elevation); perspective drawing; graphical treatment of statistics, functions, vectors, and statics; contracted methods; use of tables of logarithms, squares, cubes, cube roots, and trigonometrical functions. The answers to these questions furnished the material for the comparisons and conclusions given by Prof. Smith in his report. Germany and Switzerland reported on the work of the *Gymnasien*, *Realgymnasien*, and *Ober-realschulen*; Austria upon the *Gymnasium*, *Realgymnasium*, *Reformrealgymnasium*, and *Realschule*; France reported upon the work of the *lycées* and *collèges*; the United States upon the upper classes of the "elementary" schools, all the work of the general "high school," and the first two years of the "college."

The results of these inquiries were examined by Prof. Smith, and his conclusions were presented to the Congress in a report of great value. In this article it is not possible to do more than give some of the more important of these conclusions, in which Prof. Smith summarises the existing conditions respecting the matters referred to above, compares the tendencies of the different countries, and states the problems involved. As he says, "the stating of a problem is as important as the solution."

Dealing with work of measuring and estimating, he states that a more practical form of mensuration seems to be developing in Austria, Germany, and Switzerland, while England, France, and the United States seem to have given the matter less attention. "An elementary trigonometry is more commonly found at an early period in the first three countries, thus allowing for outdoor work with simple instruments at an earlier stage." On this point Mr. Godfrey's paper states that 58 per cent. of the public schools making returns and 44 per cent. of the other secondary schools do no practical field work. Theodolites are used in only 14 per cent. of the public schools and 23 per cent. of the others. The educational problem involved is stated as follows:—

What simple, inexpensive instruments may advantageously be used to increase the interest in the early stages of mathematics? In particular, what can be done to make the inductive cycle or phase of geometry more real and interesting, without weakening the deductive side? Then, what apparatus

can be used to advantage in the later geometry and trigonometry?

Complementary to this is the question of the amount of geometrical teaching which shall be inductive, and the amount which shall be deductive. The educational problem is thus stated in the report:—

There must be a preparatory stage, and this must be characterised by intuition and experiment. But how much shall be assigned to this stage? And exactly what ground shall be covered? And, what is more important, to what extent shall intuition replace deduction of the Euclid type? Must we have two or even three years of *Anschauungslehre*, as some have advocated, or is a year or a half-year enough? How much must the rigorist in geometry be compelled to concede to the demands of the non-mathematical mind? Was Newton right when he expressed the opinion that all this intuitive work is pretty, but that it is not geometry? Must the real geometry of the past go by the board, as went the mediæval logic, or will its position be strengthened by this propædeutic work? . . . Is the overpowering force of to-day, the force of modern industry, the cause of the growth of intuition and experiment in geometry? And, if so, what will the overpowering force of to-morrow, the force of social considerations, demand?

The employment of "graphic methods" in mathematical teaching has received careful consideration. On this Prof. Smith reports:—

Graphic methods of representing functions have become universal in the last generation. From the idea of a line representing an equation, the tendency is at present to that of a graphic representation of a function. Just how much the pupil is acquiring of the function concept seems often to be questioned, and the whole subject is in the experimental stage at present.

In English schools it is said that:—

The work is connected with the plotting of equations and with the approximation of the roots. Whether the idea of functionality is really grasped in this work seems open to question, but the graph forms a basis from which further advance may be made.

In France the graph is used in the study of equations. In Germany the function concept is mentioned as prominent, and the use of the graph merely for purposes of solving an equation is not in evidence. In Switzerland the graphic representation of equations and functions is general, and is extended to the treatment of limits. "The question of the function concept is not settled there, and it does not appear to be settled anywhere. Exactly what can be done, and how it is to be begun, are matters still awaiting the results of experience."

Prof. Smith further adds:—

The chief argument for the elaboration of the function concept seems to be that the calculus has already found place in the schools under our consideration, and if it is to hold this place and continue to grow in strength, we must cease to impose it merely from above—we must prepare for it from below. The notions of limit, variability, rate, function, and graph must be so gradually introduced that when the calculus is reached they will be met as we meet familiar friends. How to do this economically is one of the problems relating to intuitional mathematics. It is one of the interesting facts of present education that teachers are demanding the elimination of the incommensurable quantity from elementary demonstrative geometry, only to find themselves face to face with a demand for the study of limits, functions, and rate of change. The movement in favour of the elaboration of the function concept, however, is too recent to judge of its permanence in secondary education. Starting in France within the last twenty years, and vigorously advocated in Germany within the last decade, it has much to commend it if reasonably treated.

Other topics which are dealt with in the report are: (a) contracted methods of computation, which do not seem to have made any material advance of late years owing to the feeling that they are not really practical; (b) the use of logarithms; (c) the use of the slide rule; and (d) the teaching of descriptive geometry.

On all these questions the report contains much of interest for which room cannot be found in this article.

The second report was presented by Prof. C. Runge (Göttingen) on "The Mathematical Training of the Physicist in the University." It was based upon replies to a circular letter which was sent out to universities in Europe and America. The report is somewhat outside the scope of this article, but there is much in it of interest to many teachers in secondary schools. A strong plea is made for the closer association of mathematicians and physicists. To quote the report: "A need seems to be strongly felt for mathematicians and physicists to draw closer together. The spirit of mathematical teaching should be altered, so as to make it more practical and easier to apply to physical problems." There was a very animated discussion on this paper, among those participating being Sir J. J. Thomson, Sir J. Larmor, Prof. Hobson, and Prof. Love.

One of the most interesting papers communicated was that by Dr. A. N. Whitehead on the principles of mathematics in relation to elementary teaching. At the outset he set himself to consider the question as to why any mathematics at all, except arithmetic, should be taught to those in a non-mathe-

matical section, and the following brief abstract will convey some idea of his answer to the question. The great value of mathematics in such cases lay in the fact that it carried with it, in its study, two allied forms of mental discipline. The first of these was not in essence logical; it was the power of clearly grasping abstract ideas. The first use of mathematics was to strengthen the power of abstract thought. The method to be employed was that of continual practice; there was no short cut, nothing would serve save daily use. The fundamental ideas of geometry, ratio, quantity, and number supply the instruments. In a sense there were no fundamental ideas, none which were the starting point of all reasoning. It was therefore necessary to compromise and start from general ideas. In geometry those of Euclid are suitable for our purpose. The second form of mental discipline which follows from the teaching of mathematics is the power of logical reasoning—not a knowledge of philosophy, but the habit of thinking logically. It is therefore necessary to consider the rôle of logical procedure in teaching mathematics; logical precision is the power to be acquired, and mathematical education should grow in logical precision. This power does not initially exist, but must be developed gradually. The type of reasoning handed down to us by the Greek geometers is roughly the type of logical reasoning which we want. This does not mean that it is essential to use Euclid's methods; nor is it necessary to plunge the pupil at once into Euclidean methods. The practice of preliminary measurements and investigations is good, the object of these being to make sure what is really meant by the abstract reasoning which follows. The object of a mathematical training is to acquire power of analysis, generalisation and reasoning, but it is a mistake to begin with these refined products—they are the goal of the teaching.

Among other papers communicated to this section were "The Place of Deduction in Elementary Mechanics," by Mr. G. St. L. Carson; "The Teaching of the Theory of Proportion," by Prof. M. J. M. Hill; "The Proper Scope and Method of Instruction in the Calculus in Schools," by Dr. T. Percy Nunn; "A Bibliography of the Teaching of Mathematics since January 1st, 1900," by Prof. D. E. Smith; "Le raisonnement logique dans l'enseignement mathématique universitaire et secondaire," by Prof. R. Suppandschitch (Vienna); and "Systematische Recreations-Mathematik in den mittleren Schulen," by Prof. Hatzidakis (Athens).

An attractive feature of the Congress was the exhibition which had been organised by

the Mathematical Association and was accommodated in the Cavendish Laboratory. The exhibition comprised (a) models and apparatus used in the teaching of mathematics and mechanics; (b) work, syllabuses and examination papers illustrating mathematical teaching in different types of English schools; (c) calculating machines; (d) mathematical textbooks. Extremely interesting exhibits had been arranged under all these headings, and served to attract both mathematicians and teachers of mathematics. The exhibition of calculating machines was one of the most complete collections of its kind ever got together. The text-book section was also good and representative; besides all the leading English publishers, a number of foreign firms sent exhibits, the collections of Teubner, of Leipzig, and Gauthier-Villars, of Paris, being specially notable. Included in the exhibit of Teubner was an interesting set of models for the teaching of geometry, those of solids of revolution and ruled surface being much admired. Vuibert, of Paris, showed a fine series of "Anaglyphes Géométriques," in which a beautiful stereoscopic effect is obtained by the use of complementary colours. These attracted much attention, and will prove of great service in the teaching of solid geometry, projective geometry, and other branches of mathematics and science. Some drawings of similar character were shown by Mr. E. M. Langley.

THE SECOND MORAL EDUCATION CONGRESS.

By FRED CHARLES, B.A.

English Secretary to the Congress.

THE second Moral Education Congress has met at that city of Peace—The Hague, and like other congresses, has led to a useful interchange of views between thinkers whose points of view are widely different, whose ideas when expressed appear impossible of incorporation in any one scheme of moral instruction, or any method of moral education that could be devised.

Yet the interchange was useful, even if it only showed to the exponents of one school of thought that there were others, reasonable and earnest men, who held, even as tenaciously as they themselves, beliefs far different from theirs. How different were those beliefs can be realised on glancing at the societies represented by readers of papers; they, however, fall mainly into two groups, and when the basis of moral education is discussed, a clear line of division is drawn. It separates those who consider that there cannot possibly be any moral education apart from religion from

those who find some sanction for a moral code independent of any idea of religion.

One difficulty that becomes obvious on reading the papers, and even more obvious on hearing them discussed, is that no definition of the term morality has been agreed upon between the disputants; some apparently use it to connote no more than the ordinary rule of right dealing that is accepted by decent people the world over—and this even is not definite—while others would have it embrace all the higher ideals of Christianity, or rather of Christlikeness.

A further practical difficulty was that of language; it is difficult for skilled linguists like the Dutch, and it is still more difficult for Englishmen, to follow the shades of distinctions in an argument on ethics conducted in a language other than their own. These difficulties were surmounted, and many interesting and useful discussions took place.

Vice-Chancellor Sadler pointed out the extreme difficulty of obtaining a definite positive ideal for educational work in such an age of doubt and transition as the present. Modern life exhibits two main tendencies: that which lays peculiar stress upon intellectual freedom, and pleads, above all else, for full liberty of investigation, and that which bases itself upon some definite religious position, and seeks, from this viewpoint, to exert its influence upon the common life. To reconcile these two rival currents of thought is the task that lies before the educationists and philosophers of to-day. The religious and traditional element in moral training is of immense value, and the elimination of religion cannot facilitate the work of the educator.

The next paper was that of Dr. Foerster of Zurich, who maintained that the full development of moral character was impossible in the absence of definite religious beliefs, which alone offered sufficient groundwork and adequate inspiration. Ranged on the same side were M. Loslever, a Belgian judge, Prof. Bavinck, of Amsterdam, Canon Dumont, Dr. Claes, M. Paul Bureau, and a number of others. One of the most eloquent speakers was M. Bureau, who affirmed that some of the worst symptoms in French life were due to the system of secular education. Among those who argued in favour of secular moral education were M. Séailles, Herr Penzig, Dr. Stanton Coit, M. Buisson, and Dr. Neumann. Between the extremes were those who supported the view expressed by Mr. Harrold Johnson that "the ultimate aim of an international moral education movement is . . . the unification of the human race. . . . The practical problem it [the movement] is at grips with is: whether a working alliance is feasible

between the representatives of religion on the one hand and those of free thought on the other. . . . The child will in the long run prove to be our reconciler."

This is but a very brief outline of the papers and discussion that occupied four sessions of the Congress; the papers have been issued, and without the American contributions occupy about a thousand pages, and a further volume containing a report of the discussions is to be issued.

After the basis of moral education had been considered, and after the points of view from which it can be regarded had been dealt with, then the practical work of the educator came under discussion. When does moral education begin? Whose is the responsibility? How are children best taught the virtues and their practice? These and many other such questions were answered by contributors and speakers from all over the world. Teachers in schools will be interested in the opinion, often repeated, that the most important period, so far as moral education is concerned, is that period which precedes school age. Mrs. Bramwell Booth insisted upon the responsibility and paramount influence of the mother during a child's first and most important years.

There can be little doubt that the cultivation in the mother of what is true and noble—what is unselfish and of pure influence—does affect the child. And while it cannot, of course, nullify, it can and often does modify hereditary influence. . . . But after the birth and during the tender years, the mother's influence must also be paramount.

Mrs. Mumford, too, wrote :

Thoughtful teachers and parents . . . find that if they let these first few years pass by, and delay the process of deliberate training until school age, by that time more than five-sixths of the child's actions have become the result of habits already deeply rooted and therefore difficult—sometimes well-nigh impossible—to uproot. . . . Right training begins in the nursery, while the child's instincts are still potential and his habits unformed.

When the moral education of school children is considered, much is generally heard of the relative merits of direct and indirect moral instruction, but, perhaps fortunately, this particular question did not receive much attention at the second Congress.

Mr. Blakiston gave an account of the Eton Mission, showing its influence on the population of Hackney Wick on the one hand, and on the Eton boys on the other. "As for the district, there can be no shadow of doubt that the work has been beneficial. The tone of the whole region has been raised, crime is far less frequent, and drunkenness is on the wane."

The Mission "is of value to the State as bringing light and help to the dark spots of the community; and . . . reacts even more strikingly on the characters of a large proportion of public school boys, and awakens in them a sense of civic duty."

School games, again, came in for a share of the attention of Dr. Hayward. He contended

that games are trivial, and can only be approved *faute de mieux*, and that education is following a false scent in laying any great stress on them, and is but anticipating and emphasising its own barrenness of invention . . . any system of education which sees any great significance in the process of hitting a ball with a stick or kicking it with the foot is a system of organised opportunism, and that most of the people who support it are people who may be doing good work in the present, but will exert no formative influence on human progress. . . . The picture drawn of a *Gymnasium* in Wedekind's *Frühlingserwachen* suggests that vigorous games would be an advantage to the brooding and pessimistic adolescents described by that audacious dramatist. The German practice of long country walks, though admirable from the standpoint of military training, gives too much opportunity for subjective brooding; they do not allow the youth to forget himself; he may even devote his walk to a rehearsal of his school tasks. The English system of school games certainly has the advantage of checking morbid introspection.

Games might be made morally valuable in a small way . . . if only we used them as a basis for explicit instruction, deliberately discussed such notions as co-operation, obedience, instruction, fairness, and, in fact, used games avowedly as symbols of life.

Dr. Spearman avowed that the usual games were merely forms of wasteful and inefficient labour, and that, being merely degenerate descendants of the old barbaric occupations with missile and bludgeon, they have ceased to have vital significance, and should be replaced by up-to-date occupations, which have a bearing on modern civilisation. The trouble is that to replace them educationists would have to attempt to be "creative." The creative effort was made not by an educationist, but by an English General. The Scout movement is one of those occupations. It is brainy, meaningful, healthy, modern; it is so interesting that compared with it cricket and football seem but fool's tricks, and yet it involves a code of morals extending far beyond the one or two commandments of the "sportsman," and far more categorical and explicit. Scouting sets at defiance most of the traditions which pass current among schoolmasters. "The morality of sport does not effectively transfer itself to the rest of life."

Mr. Hankin, one of the representatives of the Assistant-masters' Association, also spoke

on this subject; while he did not reply directly to Dr. Hayward's argument he showed the use of school games to both masters and boys, giving his experience of both the playing field and the camp.

Miss Barnett directed the attention of the Congress to the duty and discipline movement, a movement that expressly aims at counteracting the modern spirit of laxity in home and school.

The moral education of adolescents was fully dealt with, and Dr. Saleeby contributed a paper on education for parenthood. "The faithful assiduity," he says, "the variety of method, the earnestness, the perseverance with which in the past the mysteries of religion were instilled into the young—these must be rivalled and surpassed in educating for parenthood, which will be an essential part of the religious education of the future."

Papers from various countries described what is being done for both defective and abnormal children in those countries. One of the most interesting was that of Miss Boddaert, who originated the Boddaert Homes in Amsterdam some nine years ago. Children of criminal tendencies are taken into the homes in the day-time without being removed from their families. The children see what a really well-ordered and well-meaning home is, and will so be led to a new and better life, and will raise the standard in their own homes. In all the cases taken in hand there is not one of failure.

At the final session of the Congress the continuance of its work was discussed; an international executive was formed, and a resolution was passed unanimously urging this committee to continue to work for the establishment of a Bureau of Moral Education, which shall serve as a clearing house for ideas, as a library, a central meeting place, and a nucleus for further work in connection with the moral education movement. The basis for the next Congress is to be the same as for the second, and the selection of a suitable place for the next Congress was left to the international executive; Paris, however, was suggested as the probable meeting place.

No congress would be complete without a number of more or less social functions, and no account of the second International Moral Education Congress would be adequate unless it contained some reference to the admirable opportunity offered by the hosts of Holland to the members of the Congress for making the acquaintance, not only of one another, but also of the natives, and to the opportunity of viewing characteristic scenes of the country. Practically every day brought its social function. The municipality of The Hague received

the Congress on the eve of the opening session; the municipality of Rotterdam showed to the members who remained the day after the final session the sights of their port. On Sunday a large number went by steamer through the canals and meres to the north of Leyden, and spent a couple of hours among the many interesting buildings of that ancient city. The greatest, perhaps, of all the festivities was the banquet held on the Monday, when many excellent speeches separated the courses, and toasts were honoured with hearty goodwill.

The volumes already mentioned show that much solid and lasting work has been done in preparation for the Congress, and the great success of the social engagements indicates that, in spite of opposing views, of variety of religious and ethical convictions, of difference of nationality, and of points of view diametrically opposite, the members of the Congress can meet in friendship and appreciate one another's many excellences.

PERSONAL PARAGRAPHS.

THE REV. R. F. ELWIN has resigned the headmastership of King's School, Rochester, on account of ill-health. Mr. Elwin won a leaving scholarship from King's School, Canterbury, to Trinity College, Cambridge, where he took a second class Classical Tripos in 1891. For two terms he held a mastership at King's School, Canterbury. From there he went to Felsted, where he was a house-master until he became headmaster of the King's School, Rochester, three years ago.

* * *

MR. BOMPAS SMITH, now headmaster of King Edward VII.'s School, Lytham, is going to Manchester University after Christmas, as professor of education and director of the department of education. Since Mr. Sadler gave up his professorship in Manchester to become Vice-chancellor of the University of Leeds, Prof. Findlay has been in sole charge of the educational department of the University of Manchester. Mr. Bompas Smith was educated at Mansfield Grammar School, at Jena, and at Wadham College, Oxford; he took a first in Mods. and a first in Greats. For a year he was a master at the Sutton Valence School, and afterwards for seven years at Shrewsbury School. He held the headmastership of Queen Mary's School, Walsall, for eight years, after which he became headmaster of King Edward VII.'s School, Lytham, in 1906. He wrote "Boys and Their Management in School," and, in conjunction with Dr. M. E. Sadler, "The English Scholar-

ship System." He had been a constant attendant at the Education Section of the British Association, and served on the Executive of the Moral Education Inquiry in 1907-8.

* * *

MR. J. L. HOLLAND, now secretary for education of the Northamptonshire County Council, is also one of those who have worked with Dr. Sadler whose influence in education it would be hard to overrate. Mr. Holland was educated at Kingswood School, Bath, and held masterships at St. Austell, Cornwall, at TOLLINGTON Park School, at Owen's School, and afterwards at St. Olave's. When he was chairman of the Assistant-masters' Association, he became a member of the then Registration Council. He helped Dr. Sadler in a number of educational inquiries, and became secretary of the Northamptonshire Education Committee in 1904. He is a man capable of getting through an enormous amount of work at a rapid rate; and, in this connection, there is a story that he read Morley's "Life of Gladstone" in a week-end.

* * *

PROF. FINDLAY, after graduation at Oxford, spent two years at Jena and Leipzig. For two years he was a master at Bath College, and for six years, from 1885 to 1891, was headmaster of two Wesleyan proprietary schools, Queen's College, Taunton, and Wesley College, Sheffield. In 1893-4 he was a master at Rugby, after which he became lecturer of education at the College of Preceptors, an office he held until 1898. In 1898 he became headmaster of the Cardiff Intermediate School, which he left in 1908 to become professor of education at Manchester. No school is yet a quite complete expression of Prof. Findlay's ideals. He has written a great deal on education; his last book, "The School," in the Home University Library, is a wonderfully comprehensive little volume, and forms an admirable introduction to the study of education.

* * *

THE freedom of the city of Bradford was, on October 10th, conferred on the Rev. W. H. Keeling, headmaster of the Bradford Grammar School. A service, attended by the boys, the masters, the city magistrates, and the members of the corporation, was held in the parish church, when the sermon was preached by the Master of Trinity.

* * *

AMONG the prominent members of the Mathematical Congress at Cambridge, described in another part of this issue, were Mr. C. E. Ashford and Mr. Charles Godfrey. Both were boys at King Edward's School, Birmingham, and both went up to Trinity

College, Cambridge. Mr. Ashford was eleventh wrangler in 1889, and Mr. Godfrey fourth wrangler six years later. Mr. Ashford was a master at Clifton College in 1892 and 1893, and at Harrow School from 1894 to 1903, when he became headmaster of Osborne, where he remained for two years. He then went to the Royal Naval College, Dartmouth, as headmaster, an appointment he still holds. Mr. Godfrey succeeded him as headmaster of the Royal Naval College, Osborne, in 1905, after holding masterships at King Edward's School, Birmingham, and at Winchester. He is author, or part author, of books on elementary geometry, modern geometry, and experimental mathematics.

* * *

PROF. SKEAT, who had been ill for about a week, died suddenly at Cambridge on October 7th. He was one of the best known professors—by repute, on account of his famous dictionary, and by sight, on account of his peculiar trot and his apparent complete obliviousness of passers-by—yet he was never known to pass an old friend without recognition. Prof. Skeat was educated at King's College, Highgate School, and Christ's College, Cambridge. At Cambridge he was one of an able group that included Charles Stuart Calverley, Sir Walter Besant, and Dr. Peile, the late Master of Christ's. He was reading for the Mathematical Tripos, but had abundant other interests. He was a good Latin and Greek scholar, and it was he who was second only to Sir Walter Besant in the famous examination paper on *Pickwick* set by Calverley. Mr. Skeat took his degree in 1858 and was fourteenth wrangler. Two years later he was elected to a Fellowship, but vacated it the same year, and accepted a curacy at Dereham. After a few years there and at Godalming he was compelled by ill-health to give up his clerical duties, and returned to Cambridge.

* * *

AT Cambridge Skeat became a mathematical lecturer, and, at the suggestion of Prof. Hales, was invited to assist in the work of the Early English Text Society then founded by Dr. Furnivall and Dr. Morris. During the next fourteen years he edited a number of texts, among the better known of which are "Piers Plowman" and "The Lay of Havelok the Dane." The English Dialect Society owed its origin to Mr. Skeat, who was for many years its director and president. In 1878 he was elected to the Elrington and Bosworth Professorship of Anglo-Saxon, an office he retained until his death. Of all his achievements, perhaps the greatest was the "Etymological Dictionary of the English Language."

THE vacancies on the Consultative Committee recently filled have been caused by the retirement of Mrs. Sophie Bryant, Sir Henry Hibbert, and Mr. Marshall Jackman, among others. Mrs. Bryant's educational activities are many and important; she has made the North London Collegiate School what it is—one of the foremost, if not the foremost, educational institution for girls in London; she was the first woman to be elected Vice-chairman of Convocation of the University of London; for some years she was on the Education Committee of the London County Council. Despite all these administrative duties she has found time to write one of the best books on moral education, a subject in which she takes a keen interest; indeed, she was the chairman of the executive of the First International Moral Education Congress, and is still a member of the international executive. Mr. Marshall Jackman is, perhaps, best known as one of the most influential members of the National Union of Teachers, of which he was the chairman some three years ago. He has conducted a most interesting experiment in the teaching of arithmetic at the school of which he is headmaster. In it the manipulation of figures is delayed, time in the earlier stages being spent in acquiring the idea of number, or, as one of the boys low down in the school described it, "we don't do arithmetic; we just talk about it."

* * *

MR. D. MACGILLIVRAY, Rector of the Bellahouston Academy, Govan, Glasgow, has been appointed and has commenced his duties as Rector of the Hillhead High School, Glasgow. Mr. MacGillivray, who has been a regular contributor to THE SCHOOL WORLD since its foundation, was presented by the staff of Bellahouston Academy with a silver tea and coffee service, and by the school with a gold watch.

ONLOOKER.

SUMMER SCHOOL FOR THE REFORM OF LATIN TEACHING.

THE second Summer School for the Reform of Latin Teaching was held at Bangor in September. This year the experimental classes were four in number: (1) elementary boys; (2) second-year girls; (3) third-year boys; (4) girls at a later stage. The first was a class of boys from Whitgift School, Croydon, brought down by Mr. C. L. Mainwaring, who conducted the class. They had done no Latin, but they had mostly had a preliminary training in French, and were in other respects prepared for the work of learning Latin. The other classes were formed of children from the city of Bangor, who had learnt Latin in some of the local schools on the current method. They were taught as an experiment, to see how far it was possible to graft the direct method upon the

old. The girls' classes were not quite homogeneous, which made a fresh difficulty. These classes were conducted respectively by Miss E. Ryle, Dr. W. H. D. Rouse, and Miss F. M. Purdie.

The most striking thing in the course was the difference between the first class and the other three. The first class, properly prepared for the work, showed no self-consciousness, and were ready to respond at once to the teacher's stimulus, and although they were not remarkable for mental capacity, their progress was marked, and seemed to convince the spectators that the method adopted was the right one. All the others were shy and difficult to arouse or to interest; the work of their teachers was very much harder, and the results were chiefly valuable as evidence that the current methods of teaching are harmful. Some impression was certainly made upon them, especially upon the two classes of girls; and perhaps the result gives hope that it may not be impossible to graft the new upon the old, although the compromise cannot be called satisfactory. It certainly confirmed the belief of those who favour a thorough reform; the teachers themselves have not a shadow of doubt on that score.

Each morning there was a Latin conversation conducted by some members of the school, and a lecture or discussion in English. There was an address on the direct method by Dr. Rouse, with discussion afterwards; one by Mr. S. O. Andrew on Latin phonetics; Miss Ryle opened a discussion upon the three-years' course in Latin; Prof. Granger lectured on moral education in Rome; Mr. Frank Jones and Mr. Mainwaring read papers on the teaching of Latin, each setting forth his own principles; Prof. Arnold discussed instinct and reason in the learning of languages; and the teachers of the classes summed up the results of their attempts.

Several evenings were occupied by acting or singing. A dramatic reading of the *Aulularia* was a great success. On other evenings Latin scenes were written for the occasion and acted, and Latin songs were sung.

The last afternoon was given up to an entertainment, to which friends were invited. Here two Latin plays were given: "Coriolanus" by the elder boys and girls, and "The Cattle of Apollo" (written for the occasion) by the younger.

All present were agreed that they had spent a profitable as well as a pleasant time. About one-third of the members had been present last year; the rest were new. The ease with which the Latin language was understood and used was remarkable, especially in the case of those who had been there before. It was resolved to hold the next meeting at Cambridge, and to make it a demonstration as complete as possible of direct Latin teaching at all stages; it is hoped that this may be made for the first time a real demonstration, care being taken to have all the classes composed of children who have been properly prepared.

Thoughtful persons cannot fail to observe that while the classical controversy still goes on merrily in the Press, no one seems to have any suspicion that wrong method accounts for the criticisms levelled at the classics.

OXFORD LOCAL EXAMINATIONS, 1912.

HINTS FROM THE EXAMINERS' REPORTS.

SENIOR.—The examiners in *Arithmetic* emphasise the need for greater care on the part of candidates in reading questions and thoroughly grasping what is required before commencing to work. The frequency of absurdly impossible answers also needs mention. A large number of candidates obviously do not consider in the slightest degree whether the result they have obtained appears to satisfy the requirements of the question.

Two questions in *Greek History* in which discussion was especially invited usually resulted in a bald narration of facts. Many candidates seemed to think that lack of quality could be made up for by quantity, and tried by repetition and elaboration to disguise a want of knowledge. There was too much verbatim reporting of the teacher or the text-book, and the same phrases tended to run through the work of a single school.

In many centres there was a tendency in *Roman History* to verbiage, and a single question was dealt with on three or four pages, while everything essential had been said in half a page. Another fault was inattention to the exact wording of questions. The distinction between discussion and description was not observed sufficiently. The map-making was bad.

In *English History (B Paper)*, many candidates were tempted to give a great deal of irrelevant information. The literature question was answered poorly: it is a pity that students of this period should not know something of Chaucer. The questions on John's submission to the Pope and on the religious revival of the fourteenth century betrayed a very considerable amount of confusion as to Church history. Generally, greater precision is needed, and vague undefined assertions should be discouraged.

In *English History (D Paper)*, there were many signs of tabulated answers having been learnt by heart and applied to questions to which they have no application. As usual there are evidences of ignorance of historical terms, and there is gross confusion of periods. The map question was in almost every case badly done. The examiners would like to suggest that more attention be paid to historical geography and to accuracy in chronology.

Commenting on the answers to the *General History G Paper*, the examiners say more careful attention should be paid to the wording of the questions. Where facts only were asked for the answers were generally good, though causes were dragged in sometimes. Where causes, objects, &c., were asked for these were often entirely overlooked, and a bare outline of facts was given. In *General History (H Paper)* few candidates understood what was meant by "national policy" and "national aspirations." Many confused the Holy Roman Empire with the Papal power in Italy. The sketch-maps were for the most part extremely rudimentary, and not often correct. Where candidates were asked to *compare* situations or causes it was rare to find any comparison attempted. In this and other cases the common fault of failing to attend to the

wording of the question marred much of the work. Another serious fault was the repetition of the same information in answering different questions.

Candidates answering the paper on Shakespeare's *Henry V.* are strongly urged to familiarise themselves with the exact meaning of phrases which commonly form part of the wording of questions, e.g., "context," "explain," "reference." They are recommended to practise themselves in answering the several recognised kinds of questions. "Context" questions, for instance, demand not merely a statement of the speaker and those to whom the words are addressed, but also a brief description of the circumstances and an explanation of unusual words. The spelling of proper names, and of words frequently used in answers, leaves much to be desired. Candidates are further reminded that the subject of examination is a *play*, not a historical narrative. A dramatist is free to deal with his subject-matter as he pleases. Quotations should be strictly pertinent. It is not a virtue to write out a long passage for the sake of quoting the two or three lines of it which are pertinent.

The examiner of the answers to the paper on *Marmion* says the following faults and weaknesses call for attention: (1) the careless use of vulgar and slang expressions; it is surely waste of effort to encourage the reading of good literature, and yet allow slovenly habits of expression; (2) the apparent inability to illustrate by a few good quotations; (3) ignorance as to the meaning of "prose" and "verse"; (4) careless spelling; (5) handwriting so minute as to be illegible.

Referring to the answers to the *A Paper in Geography*, the examiner reports that the characteristic of extraordinarily bad map-work persists. It seems customary to assume that pupils know the positions of places in Europe with the names of which they are familiar. Apart from map-work there is much excellent answering, although the minute control of the teacher is often too apparent. Pupils should be allowed to study maps for themselves. In the case of the *B Paper* there seems to be some tendency to study the special region too exclusively, sacrificing the general principles of the subject, and, in particular, the geography of the British Isles.

The *Latin Grammar* questions, though easy, were not well done—for example, very few candidates attempted to *classify* the uses of the ablative, and most candidates were very ignorant of the Latin prepositions. In *Paper II*, in the translations of prepared books, scarcely a single candidate turned the Cæsar exactly, and almost every translation of the first piece shown up was disfigured by a literal representation of the ablative absolutes.

The *French Composition* was, on the whole, rather poor. The vocabulary was seldom adequate, and the grammatical accuracy left a great deal to be desired, especially as regards the conjugation of verbs. The construction of *faire*+infinitive was well understood by a good proportion of the candidates, but there was, in nearly all the exercises, a confusion of the tenses; many used the imperfect all through. The *Free Composition* appeared to be better than the prose, but this was often due to the greater latitude which this sort of exercise allows. In many papers the same words

were used over and over again, and thus candidates were able to produce a dozen lines containing few mistakes, but also very little substance. On the whole, however, the general impression is rather less unfavourable than last year, and some progress has been made.

A few excellent solutions of the harder practical questions in the *Geometry* paper were given, but most attempts were little more than guesswork. In the propositions there was a tendency to neglect to state the construction or properties of the figure, and to give only one case where two were necessary. When the "principle of superposition" was used to prove two triangles congruent the methods were often extremely slovenly. The work on the proportional division of the sides of a triangle was very poor. Of the various methods employed, the Euclidean proof appeared to be well understood, but the proof by a series of equidistant parallels was seldom given properly, and was obviously quite meaningless to the majority of those who offered it.

In *Algebra* only a moderate number showed acquaintance with functional notation, and a very large number gave as answer to the literal equation an expression containing x . This is a blunder which shows real ignorance of algebra. Large numbers also failed to give a *complete* solution of the simultaneous quadratics. The bookwork question on the Binomial Theorem was very seldom done satisfactorily, and the graph seemed to be beyond most of the candidates, very few showing that it went to infinity, and many making it pass through the origin. The deduction from the graph was often answered, but very rarely from the graph, most of the candidates failing to see any connection.

In their *Trigonometry* papers many candidates failed to use trigonometrical tables correctly, and much unnecessary work was done in attempting to avoid the "cosine," because the tables gave only the sine. Comparatively few candidates could find the value of $\cos^{-1}(-.575)$, and in other parts of the paper it was evident that the trigonometrical values of obtuse angles caused difficulty. Identities were well done, and there was a pleasing absence of the $0=0$ type of proof. The formulæ used were often cumbrous; for example, the angle of a triangle, the sides of which were given, was frequently found from a formula for $\sin A$ in terms of the sides, which involved much heavy calculation. The questions should be read more carefully; such words as "deduce," "geometrically," "use your result" were often disregarded.

In *Theoretical Chemistry*, there is still a great tendency to describe methods of preparation which, however possible theoretically, are not in reality practicable. Relatively few candidates were able to give a correct definition of "isomorphism": a very large proportion made arithmetical mistakes in the working out of a simple numerical question.

The work sent in on the *Electricity A Paper* was poor in quality. The chief defect was the want of accurate knowledge of the experimental detail; questions involving such knowledge were not answered so well as those involving theory alone. In the case of

Electricity B Paper, the standard as a whole was low. The question on the effect of a change in temperature in a battery and circuit on the intensity of the current passing was the one which offered most difficulty; next to that, the question on the earth-inductor was least well done. One fault was very general—a want of precision in the fundamental definitions and in the statement of fundamental principles. In many cases it seemed that the candidate had grasped the principle, but could not express it simply and completely in words.

A large amount of irrelevant matter was shown up in the answers to the *Heat B Paper*, apparently from a wish to fill a certain number of sheets of paper. In many cases, after two or three questions had been well answered, there were three or four sheets which gained no more marks. In making thermometers, the importance of calibrating the tube, and of noting the pressure when marking the boiling-point, was frequently ignored. In describing the method of finding the coefficient of expansion of a permanent gas, candidates frequently mixed up constant pressure and constant volume methods. Thermal conductivity presented many difficulties, and was often confused with thermal capacity. The experimental work in this subject is not easily described, but a few candidates surmounted the difficulty. The definition of specific heats was often inaccurate.

The examiner in *Hygiene* says the papers have been so uneven that it is difficult to draw an average; it is certain, however, that many have been bad. The purely physiological questions have, on the whole, been answered best. Very many answers show lack of thought; the very simple question asking the normal rate of breathing per minute has, for instance, produced estimates varying from five to three thousand. These figures indicate clearly how carelessly answers are given. Less writing and more thought would produce far better papers.

JUNIOR.—In the *Arithmetic* answers the working of the questions involving decimals was, on the whole, unsatisfactory. There are still many who convert all decimals into vulgar fractions before proceeding to make their calculations—a process which often led both to laborious work and to inaccurate results. On the other hand, many candidates think that all vulgar fractions, however simple, should be decimalised, often with great disadvantage to themselves, and generally without any appreciation of the error involved in making use of approximate values. A question easily worked by Practice was often done in a very cumbrous way by proportion. The decimal methods attempted were usually not successful. The compound interest was best done by decimals; the working by formula was generally long and inaccurate.

The answers to the *History C Paper* were frequently vague and verbose. The papers were often untidy and the style poor, while the spelling and the handwriting of a large number of candidates were thoroughly bad. Many failed to read the questions with any care before beginning to write. In short, the work, taken as a whole, was unsatisfactory. In the *History D Paper* the failure of many is due to

lack of preciseness in knowledge of detail. The question on Irish history was, as a rule, not well known, while those who attempted the question on mediæval warfare showed a lamentable ignorance of the subject. The spelling of many of the candidates was weak.

The outstanding feature in *Foreign History* was the absence, in the majority of cases, of a satisfactory knowledge of the general framework of the period. The result was a distressing want of proportion and coherence in most of the answers, and not seldom a complete ignorance of some broad fact quite essential to a proper understanding of the condition of Crusading Europe. For example, very few candidates seemed to have heard of the Eastern Empire, and not a few imagined that Constantinople was already a Turkish city. No candidate seemed to have been made aware of the special connection of Germany with the Western Empire, and the question on Barbarossa's work in Germany was not answered at all.

Commenting on the answers to the questions on Shakespeare's *Tempest*, the examiner states that the blind reproduction of editorial notes and explanations—long and short alike—is to be deprecated. The gravest faults are obviously due to the carelessness of candidates in reading the questions. It should be impressed on young students that bald numbered tabulations of events or "illustrations" do not form adequate answers. The majority make greatly excessive use of long passages learnt for repetition purposes. Little—if anything—is gained by giving more than the relevant or appropriate lines. In the case of *Henry V.* the answers were in many cases loosely constructed, and lacking in clearness. Teachers should consider the advisability of giving a little more attention to etymology, and of ascertaining that the exact meaning of individual words is known. Candidates should note that to give the substance of a passage with apt quotations is not the same thing as writing out the passage without note or comment.

The answers to the questions on *Marmion* in a great many instances were of excessive length, overlaid with a mass of irrelevant matter, with the effect of obscuring the knowledge of the candidates and diminishing the value of the answers.

Many of the answers in the *Geography B Paper* on the special region suggest the desirability of inducing candidates to read a few good first-hand descriptions of the countries they study. Many candidates did not seem to have read the questions carefully. Vague generalities, especially in answers to questions involving descriptions of climate, were common. The knowledge shown of the geography of England and Ireland was very inadequate. The spelling of common geographical names left much to be desired: "Glasgow," e.g., was spelt "Glascow" by a very large number indeed. In the *C Paper*, a very considerable number of the candidates seemed to be ignorant of the meaning of Contours, and a still larger number of the ordinary conventional signs of the Ordnance Survey maps. The effect of the rotation of the earth on the currents of the air and the ocean was not generally understood. There was a decided improvement in the answers in the matter of relevancy; but a great number of the candidates talked

of rivers flowing from their mouths towards their source when discussing the facilities for communication afforded by their valleys, showing a want of clear thinking. Such expressions as the "climate of China" or "India" were very commonly used, and exhibit the same defect.

Two errors in the *Latin Paper (I)* are so widespread that they deserve especial attention: (1) that *homo* = mankind; (2) that A.U.C. = *ab urbe condita*.

The distinguishing features of the work submitted in *French* were an increased facility in expressing themselves shown by the majority of the candidates, and a decrease in accurate knowledge of grammar. This applies especially to the accident of the verbs, regular and irregular, and to the use of the tenses. In *Paper II*, many candidates showed no appreciation of the relation between French and English tenses, and used the English present, past, and perfect indifferently in the same sentence. The questions on the prepared books, and the translation of the passages from them, were very badly done by the majority of those who attempted them. The Free Composition in *Paper III* was, generally speaking, done by those who felt unable to grapple with the prose. Careless concords and wrong tenses were frequent, but the results were in many cases very fair, and in some quite good. The translation from French often showed considerable merit, but the chief points were not always grasped, even by the better candidates. The weakest part of the work was the idiomatic sentences; and the verbs had, in many cases, not been sufficiently prepared.

The quality of the *Geometry* work was superior to that of last year; but fundamental mistakes were still frequent. The following may be specially mentioned:—The congruency of two triangles inferred from the equality of two sides and non-included angle; and non-corresponding parts of two congruent triangles stated to be equal. Candidates should remember that, when proving the congruency of two right-angled triangles with hypotenuse and one side equal, they should emphasise the fact that they are using a property peculiar to *right-angled* triangles. Loose expressions are on the increase, e.g., "a triangle = two right angles"; "the circumference of a circle contains the radius six times exactly," &c. It is desirable that even in answers to theoretical questions the diagram should be *approximately* accurate, and not merely applicable to a special case. Candidates should read both the instructions and the questions carefully. Through neglect of this precaution many of them confused "segment of a circle" and "segment of a line."

In *Elementary Algebra*, not sufficient use was made of factors, and the factorising of cubic expressions was poorly done. The meaning of "L.C.M." appeared to be unknown to many, and many candidates seemed to think that the denominator in a fraction is a negligible quantity. The problem was well done on the whole. The actual graphs were intelligently done for the most part, but practically no attempt was made to solve the actual problem by graphical methods. The knowledge displayed of "Indices" was poor.

In *Theoretical Chemistry*, many candidates use the term "parts," sometimes with the meaning of masses, volumes, atoms, or molecules, and sometimes apparently without knowing which. Such loose expressions should be avoided, as they seldom conceal ignorance and never indicate knowledge. So many candidates state that little or no oxygen remains in the air of a crowded room, and that a candle will not burn in it, that it would appear that they have been taught that such is the case.

The following points deserve special attention in *Practical Chemistry* :—

1. The instructions at the head of the paper are very important.

2. In Quantitative work full marks can only be obtained by a complete record of all weighings and measurements.

3. Nothing should be entered unless supported by actual experiment.

Candidates lose a good deal of credit because they give a confused account of what they have done and observed. Each separate section of a question of this nature requires a definite answer, whether a positive or a negative result be obtained. The candidate should aim at putting down simply and clearly (1) what he (or she) *does*, (2) what he (or she) *sees*, (3) any conclusions he (or she) may draw.

In *Sound and Light*, many marks were lost by the use of unexplained formulæ in calculating the position of an image formed by a convex lens. It may also be pointed out that, without explanation or diagram, the terms "behind the lens" or "in front of the lens" are quite meaningless.

In *Electricity and Magnetism (A Paper)*, a large majority of candidates were unable to answer the question on the measurement of the internal resistance of a cell and to calculate the internal resistance of a battery connected in parallel.

A mere list of the principal effects of an electric current was often given instead of the required description.

There was much confusion between the potential at various points on a charged metallic body and the electric densities at these points. In the *B Paper* the questions on the heating effects of currents were not well done, while very few candidates described a sound method of comparing the e.m.f. of two cells or of finding the internal resistance of a cell. Many candidates could, with advantage, have illustrated their work with diagrams to a greater extent than they did.

In *Physical Geography*, the answers to the paper were characterised by want of intimate knowledge. Something was usually known about each question, but often this was scarcely worth putting on paper. Thus few could draw contour lines on the map supplied because they had never studied from contoured maps the directions these lines usually take. Rain gauges were often, though of metal, graduated and sometimes inside. Few knew about coral reefs, and only three in considering the absorptive power of the atmosphere for heat referred to the aqueous vapour it contains.

HISTORY AND CURRENT EVENTS.

"FIERCE is the light that beats upon a throne," is a saying dating from the time when thrones were held almost exclusively by hereditary monarchs who surrounded themselves with a court, generally consisting of their nobility, and regarded by those outside the circle with envy because of its magnificence. But the President of the new Chinese Republic finds it as true of a presidential chair as of the seats of older monarchies. He has reigned no more than a year, and already the results of the revolution are beginning to be discussed, not always in a friendly tone. His prompt execution of rebels reminds the world of the methods of the Manchus, and those who profess to know are telling us that there is, after all, no real change in China, that the revolution has been effected by a few, acting in the eastern provinces, and that China as a whole still pursues the even tenor of her immemorial way. All vast empires (*i.e.*, where means of communication are comparatively defective) are alike in this, that the rule of the central government is felt but little in the more distant provinces. Persia of old time and Russia of to-day are examples of this political condition.

CHINA, Persia, Turkey, the three parts of the Asiatic mainland not controlled by Europe, have been agitated of recent years, and have been attempting to adapt to their own circumstances those institutions of the Western world which they have imagined were the foundations of European superiority to themselves in the art of modern government. Among those institutions is "representative government," *i.e.*, the meeting of an assembly chosen by "the people" for purposes of consultation with the monarch and his advisers. Has it been a success? We flatter ourselves in Great Britain that our Parliament, the only one of such mediæval assemblies to survive the Renaissance, is adapted to our needs, and we might perhaps add one or two of the modern imitations thereof to the list, but that is because they exist in small and largely homogeneous countries. Ireland is not so sure about the matter. But the institution is one which requires roots, and the recent imitations, being largely rootless, have not flourished. China is but at the beginning. Persia has failed, and Turkey does not seem to be happier with her Parliament than she was without it.

TURKEY'S case is particularly unfortunate. She is suffering for the sins of her forefathers. While (until 1683) she was a conquering force, she was that and nothing more. She subdued the peoples, and while tolerant in a way to their respective religions, she never attempted to absorb the subject population or to mingle with them. The consequence is that the monarchies which in the last fifty years have grown to ever more assured positions at the cost of the Ottoman Porte are composed of peoples who have always regarded the Turk as an intruder. Slavs and Bulgars of various kinds have now all but ended the "Turkey in Europe," which some of us learnt about in our school days, and since the rise of "Young Turkey" to power, that party has been hampered, not only by internal differences, but by attacks from outside, be-

cause it seems that, with the best of intentions, Turkey is incurable. Austria-Hungary and Italy have seized her territory, and now, as we write, it seems that the Balkan States are determined to end or mend the matter for themselves.

WHAT is a "covenant"? We must go to the Old Testament for the origin of the idea, and to our "Authorised" Version thereof for the word. Some of the oldest documents of Israel speak of a "book of the covenant," and some of the prophets use the word and speak of a "covenant-people" and of a "new covenant." In Israel, it seems to have connoted especially an agreement between the people and their God. "Ye shall be My people, and I will be your God." That is the meaning of the word "holy," the people were separated to JHVH, "you only have I chosen from all the peoples of the earth." The Scots in their revolt against the Stuarts made such a covenant, steeped as they were in the language of the Bible, and they afterwards used the word to describe their treaty with the English Parliament that had revolted against Charles I. Is it owing to the Scots in Ulster that a recent document, inspired in part by religion—*i.e.*, "religious hatred"—has been called by this old-world name?

ITEMS OF INTEREST.

GENERAL.

THE President of the Board of Education has appointed the following to be members of the Consultative Committee:—Miss M. A. Douglas, Mr. Frank W. Goldstone, M.P., Dr. H. A. Powell, Mr. R. H. Tawney, Mr. F. F. Urquhart. These appointments are for a period of six years from October 1st, 1912. The appointments are made to fill the vacancies caused by the retirement of Mrs. Sophie Bryant, Sir Henry Hibbert, Mr. Marshall Jackman, Mr. Albert Mansbridge, and Dr. Norman Moore, whose terms of office have expired.

A SPECIAL meeting of members and friends of the Moral Education League will be held on November 29th next at 8 p.m., at the Royal Society of Arts, John Street, Adelphi, W.C., when Dr. F. H. Hayward will give an address on "The Experimental Vindication of the Moral Education League."

THE Science Section of the London Branch of the Association of Assistant-mistresses has been in existence for the last three years, and has been well supported by the science mistresses in London schools. This section has now decided to become a nucleus of a larger science association, which shall not be restricted to London members, but shall include any past or present teacher of science in a public secondary school for girls or any science lecturer in a women's college. The inaugural meeting will be held at the London Day Training College, Southampton Row, London, on November 23rd, at 3 p.m., when an address will be given by Prof. H. E. Armstrong, F.R.S., on "Science Befitting Girls." Subscriptions (5s.) should be sent to the honorary secretary, Miss I. H. Jackson, Godolphin and Latymer School, Hammersmith, W.

THE annual conference of the National Federation of Class Teachers was held at Merthyr Tydfil on September 27th and 28th—too late for us to refer to it in our last issue. Mr. F. T. Oxbury, of Norwich, the president for the year, dealt in his address almost exclusively with the physical aspects of the education of elementary-school children. The charge has sometimes been made against teachers in elementary schools that in their meetings for discussion they are concerned chiefly with personal interests and devote too much of their energies on these occasions to questions of salary and status. The most captious critic would find it difficult to level such a charge on this occasion. From beginning to end of his able address Mr. Oxbury was concerned with the welfare of the child, and his pleas on behalf of mentally and physically defective pupils should bear good fruit. The increase in numbers of large schools, among other modern conditions, has much reduced the chances of a certificated teacher ever becoming the head of an elementary school, and well-qualified men and women are learning to regard the position of class teachers as their life's work. The meetings at Merthyr Tydfil showed that they are taking up their task with loyalty and distinction, though the conditions under which they work are sometimes almost hopeless.

As Mr. Oxbury said: "The elementary-school child is still taught under the 'gang' system in both provided and non-provided schools, and until classes are so considerably reduced in size that due regard may be had to varying temperament and differing capabilities produced by heredity and environment, it will be totally impossible to obtain the full value for the money expended upon education. The age of total exemption from attendance at school is still much too low, the 'half-time system' is still tolerated, it is still possible for children to be employed out of school hours, and medical inspection has plainly demonstrated the fact that many children are prevented by physical defects from deriving the full benefit from the instruction they receive, whilst large numbers are in attendance at the elementary schools for whom it is essential that provision should be made in schools specially suited to their needs. The standard of intelligence of the pupils in any class of sixty must necessarily vary to some considerable extent, but in many cases this divergence is so great that it is quite impossible for the teacher to do justice to all. Whilst a certain proportion will be children for whom secondary education should be made possible, when the time for such arrives, there lies on the other side of the 'normal' child a varying proportion of those who are backward to such an extent that they can only be dealt with by the provision of special classes, of much smaller size, in which due attention can be given to them; and beyond these frequently there will be found a small number who are feeble-minded or mentally defective, and therefore require instruction of a kind specially suited to their needs." Instead of grumbling at the poor results obtained in the elementary school, as has been the fashion of too many writers and public speakers, we are impressed by the success which has been attained in the face of so many

obstacles, and wonder how much teaching those of us whose experience has been wholly in secondary schools could accomplish in a class of sixty varying between such wide limits of attainment.

FROM the fortieth annual report of the London Teachers' Association it appears that the association was inaugurated in 1872 with an enrolment of thirty-nine members. At the first general meeting the numbers had increased to 120. The membership for 1911-12 was 17,916, an increase of 821 above the total for the preceding year. The report shows that the improved Government pensions and disablement allowances for elementary-school teachers will necessitate a readjustment of the Complementary Superannuation and Provident Fund in connection with the London County Council, to which 90 per cent. of the existing teaching staff belong, and all future entrants into the service are required to join. Great interest is being taken by London elementary-school teachers in the promise of the Government to introduce a national scheme of pensions for teachers in secondary schools, and representations have been made to the Council on behalf of teachers in aided secondary schools, polytechnics, and institutions of higher education, who seem at the present time to be the only persons unprovided with pensions. Mr. H. J. Wood, assistant-master, Basnett Road School, Battersea, in his presidential address, said the history of education showed that the efforts of pious founders from the earliest times to provide educational facilities for the poor had been constantly frustrated. He attempted to show from the original charters that such foundations as Winchester, Eton, Westminster, and the Oxford and Cambridge colleges had been intended for the poor. He contended that the poor are being still further excluded, and as a remedy said he would allow no child to enter a secondary school until the elementary course had been completed, adequate private provision being made for assistance or maintenance.

In the teaching of geography one of the great difficulties is to make real the outward appearance of things from many points of view, and yet without realisation geographical work is largely barren and unprofitable. In other subjects also a visualisation of the real thing is of immense value. By means of the lantern a great deal may be done, and indeed has been done in some schools, especially in those the governing bodies of which have been enlightened enough to set apart a special room so that pictures may be shown quickly without disturbance and with the minimum of preparation. Some teachers have looked farther ahead, and have thought seriously of the possibilities of the kinematograph in giving that movement to the scene which is of the essence of the human note. The "trade," too, has seen the advantage of tapping—if it could be tapped—the unworked scholastic field, and has made several advances. But so far not much has come of those desires. The educational film does take its turn with the rest at the picture palaces, but its real value is lost because those who would really use it—the teachers—have no hand in the presentation. There is,

on one hand, the expense of installation of a special lantern, and, on the other, the danger of fire, which reduces itself again to expense in the fitting up of a special fireproof room: this, and particularly the latter, expense obviously has been prohibitive.

It is all to the good, therefore, that there has been found for the gelatine emulsion a new foundation film "Boroid," which appears to be reasonably safe. Though it will char and burn slowly if a lighted candle be held continuously below it, the flame goes out when the candle is removed, and there is indeed less danger connected with its use than there is from the actual light itself of the lantern, whether electric or other. Besides the danger of fire, there is another objection to the use of the kinematograph methods: one is hurried along from scene to scene; if a stop occurs the heat of the lantern at once causes the gelatine films to blaze up; one is never allowed to stop and analyse situations. Herein, indeed, lies the great advantage of the lantern slide. With a "Boroid" film and heat-filter, however, it is possible to stop for some minutes at any point and discuss what is presented. At the worst, without a heat-filter, all that happens is what happens to an overheated lantern slide: the gelatine melts and the individual picture is destroyed; there is no blaze. With a small projecting lantern costing ten guineas, and adapted for the slide or Boroid film, the problem of the class-room presentation of kinematograph pictures seems to be appreciably nearer a solution, and incidentally the necessity for a special room is made more obvious.

THE third (revised) List of Plays issued by the London Schools Musical and Dramatic Association, forming No. 14 of its series of leaflets, is a distinct advance on the former lists. It is divided into sections, historical, classical, and so on, with full particulars in tabular form of the prices, publishers, number of characters and suitability for various types of performers of the selected plays. The information should prove of great service to busy teachers in search of material for school performances, and will, it is to be hoped, secure further support and recognition of the admirable work done by the association. Such lists are not compiled without much labour and thought, and though one might complain of certain omissions, nothing is here included that is not calculated to advance the aims which the promoters have at heart. The leaflet may be commended also to the attention of old girls' and boys' societies whose co-operation in maintaining a high dramatic standard in their former schools is desirable. It is to be obtained from the hon. secretary, Mrs. Millington, 42 Hampstead Way, London, N.W., price 2d.

"L'ENTENTE," the Parisian friend of foreigners, gives to all its members paying the small yearly subscription of 10s. every kind of useful information. A list of well-recommended families, boarding-houses, and travelling itineraries are some of the aids it offers. Through its magazine on French life, it introduces those who require situations to those who require foreign employes. "L'Entente" is helped in its good work by many distinguished persons in

different countries; among these are M. E. Bourgeois, M. Picavet, secretary of the Collège de France; Mr. Hartog, academic registrar of London University; M. Collet, French Consul-General in London; and President Butler, of Columbia University. Arrangements have been made for the famous writers M. André Lichtenberger, M. Georges Lecomte, MM. d'Esparbès and Henry Bordeaux to lecture in England. The society sends also bright lecturers to foreign schools, who deliver French lectures, illustrated by beautiful lantern slides. "It is most stimulating for both pupils and scholars," affirm the principals who have already tried the scheme. When the schools are not rich enough to pay all expenses, the society defrays a part, so that the schools have only to pay the minimum of three guineas for one lecture, five guineas for two, £6 15s. for three consecutive lectures. Full information may be obtained from the general secretary of "L'Entente," 54 Avenue Flachet, Asnières—Paris.

PUBLIC school education again forms the subject of an article in the October issue of *The English Review*. This time Mr. A. C. Benson gives the results of his experience, and he writes as a former public-school master and as a teacher in one of the old universities. Mr. Benson believes that the best remedy for the defects which he notices would be "for a Royal Commission to deal with the whole subject of secondary education at school and university, to insist on breaking down the high-and-dry tradition of classical culture, and the grievous congestion of the curriculum, to insist on more alternatives and higher standards, to devise a system by which the central core of education should be really general and efficient, while allowing emphasis to be laid upon special aptitudes."

THE current number of *Science Progress* contains no article directly concerned with teaching, though all the essays are of more than usual interest. The account of the genesis of logarithms by Mr. A. Ferguson should appeal to the mathematician, though it is rather beyond the lay reader, who will perhaps turn for consolation to Mr. J. H. Worthington's article on the planet Mars. The author has spent several months with Prof. Lowell, and has been able, in consequence, to realise the effects of climate upon astronomical work. To appreciate the discoveries which are connected with Lowell's name, it is necessary to understand the methods which he has used: these are stated very clearly in the article, which, in consequence, gives an authentic account of the present knowledge of the planet.

SCOTTISH.

THE annual general meeting of the Educational Institute of Scotland was held in the Synod Hall, Edinburgh. Dr. Alexander Morgan occupied the chair, and there was a very large attendance of delegates and of the general public. The presidential address was an extremely thoughtful and critical review of modern educational tendencies. The greatest barrier to educational progress was, it was stated, to be found in over-standardisation and uniformity. State control brought these inevitably in its train, but with

the establishment of wider areas of educational administration it should be possible to introduce a much larger element of freedom and elasticity into the organisation and methods of the schools. In no other country of equal educational standing had there been so little first-hand scientific investigation of educational problems. We were in truth little better than educational parasites living upon the experiments of other nations the conditions and needs of which were vastly different.

THE congress proceedings attracted more than usual interest owing to two items on the programme of a unique character. Mr. D. M. Cowan, Glasgow, the convener of the Superannuation Committee, was presented with an illuminated address, a cheque, and an album containing the signatures of more than 12,000 teachers to mark the successful conclusion of his indefatigable labours on behalf of superannuation. Scottish teachers are not nearly so prone to recognise the labours of their leaders as are the members of the National Union of Teachers, among whom presentations are of almost yearly occurrence. On this occasion, however, the flood-gates of indifference completely broke down, and there was a practically unanimous response to the appeal for recognition of Mr. Cowan's great services. The other feature of special interest in the day's proceedings was the conferring upon Lord Pentland of the honorary degree of Fellow of the Educational Institute. In doing so the president expressed the hope that his lordship would earn the same success and gratitude in his high administrative office in the great Indian Empire as he had won in the sphere of Scottish education. Lord Pentland, in replying, paid a tribute to the public spirit which the representatives of the institute had shown throughout all his term of office.

THE Scottish Classical Association has had for some time a committee investigating the facts in regard to the teaching of Greek in Scotland. A report has now been issued which proves that the study of the greatest of all languages is steadily declining, and in some important districts has disappeared altogether. Eighty-seven schools still give a place to Greek on their time-tables, but an analysis of the figures reveals the startling facts that thirty-five schools have fewer than six pupils learning Greek, that twenty schools have no beginners, and fifteen have only one beginner this year. As compared with four years ago there is a decrease of 38 per cent. in the number studying the language. This decrease is entirely due to the decline in the numbers in the State-aided schools. The schools freed from the influence of codes and circulars show practically no change on previous years. The committee considers that there are two main causes of this decline in Greek study: (1) Greek is being abandoned because of the tendency to take the line of least resistance, "the primrose path of dalliance," in modern schools, and (2) because of the rigid insistence by the Department on a uniform Intermediate curriculum, with drawing and science compulsory for all. The only chance of Greek securing standing room in Scottish schools lies in some relaxation of the present dull dead uniformity of curriculum.

THE annual report of the director of studies, Mr. John King, to the Edinburgh Provincial Committee for the Training of Teachers has now been issued. It states that during the session ended in June last 719 students were enrolled in the course for the general certificate, twenty in the course for teachers of higher subjects, and 134 as teachers of special subjects, like drawing, music, and manual work. The work of erecting the new training college has, it is stated, been pushed forward with great energy during the year. The present advanced position of the work and the progress made hitherto seem to justify the expectation that the building will be ready for occupation by October, 1913.

AN association representative of all shades of political opinion and of all grades of society has just been formed for the defence of higher education in rural districts. The growing tendency towards the disappearance of all higher education in rural schools and the consequent loss of opportunity for many capable pupils has at last come home to the conscience of the people. Only those who are wilfully blind to patent facts can deny that in many parts of the country higher education has ceased to exist so far as the poorest section of the community is concerned. The great central schools have done magnificent educational service in the great cities and in many provincial centres, but in the towns and sparsely populated districts, they have tended to cut off from poor pupils the facilities for higher instruction that formerly existed. The new association has already collected a vast body of evidence bearing out this view, and the intention is to direct the consideration of Parliament to the question, seeing that all attempts to get redress from the Department have hitherto failed.

REFERENCE was made some time ago in these columns to the appearance on the educational horizon of Scotland of a "religious question." Dalziel School Board recently dismissed a teacher who had joined the Roman Catholic Church because it considered she was, thereby unfitted to give religious instruction in the school. The lady appealed to the Department against this decision, and the Department has decided that the lady was wrongfully dismissed, and has ordered the Board to pay to her three months' salary as compensation. All this is strictly in accord with the provisions of the Act of 1908. But now comes in the element of comedy, if not of farce. The School Board claims that the judgment, according to the Act, must be that of the Department, points out that, according to a recent statement of the Lord Advocate, the members constituting the Department have not met for several years, and asks by what right Sir John Struthers claims to speak in the name of this august body. There are several horns to this dilemma, and it will be interesting to note which particular one Sir John will choose to ride off on.

THE annual report of the Royal Technical College, Glasgow, shows that during the past year there has been a continuous and steady increase in the number of students from across the seas, and more especially

from India and the Colonies. The statistics submitted showed that the college was the centre of the organisation responsible for the education in day or evening classes of nearly 14,000 students. Arrangements for the affiliation of the college to Glasgow University have now reached an advanced stage. A draft ordinance has been mutually agreed upon between the two contracting parties, and now only awaits confirmation under the procedure of the Universities (Scotland) Act of 1889.

IRISH.

THE proposed new Treasury grant of £40,000 has met with strong opposition from the heads of Roman Catholic schools, and they have issued in regard to it a memorandum under nine heads, which may be summarised as follows: (1) They claim a desire to help assistant-teachers on the basis of an agreement in writing reached in January last, and presented then to Mr. Birrell. (This agreement, which has never been published, has been the subject of controversy in the Press.) (2) Ireland's equivalent for the sums spent on secondary education in England is £120,000. Including the scholarship grant, Mr. Birrell is only giving £50,000. But the income of the Intermediate Board has recently been fixed at £25,000 lower than it was some years ago, and therefore the effective increase available for the schools is only £15,000, or an average of £44 for each school. (3) They protest against any distinction being made between lay and clerical teachers. Lay teachers have no right to any artificial status or privileges over priests and other religious persons engaged in teaching. The suggested regulations would mean the dismissal of clerical teachers to make room for laymen. (4) There is no justification for the regulation that one lay teacher should be employed for every forty pupils on the roll, as in Catholic boys' schools that proportion is satisfied already. (5) The principle is a false and hurtful one that any proportion of lay teachers should be laid down. (6) The disability would affect only Catholic schools, and not Protestant schools, and therefore involves the penalising of the former. (7) They hope that in defining the basis of registration regard will be had to the nature and conditions of Catholic religious schools. (8) Objection is taken to the proposal insisting on six months' notice being given. (9) Extravagant and untrue statements have been made in the House of Commons regarding the treatment of assistant-teachers.

THE Roman Catholic Hierarchy meeting at Maynooth on October 8th, having discussed the proposed grant, issued a statement to the Press in which, after protesting "against the discrimination between lay and clerical teachers," and vindicating "as an inalienable right the power to employ the teachers whose services the interests of education demand, whether laymen or clerics," the bishops express their desire to see the position of lay teachers in the secondary schools improved, and hope that a satisfactory settlement may be reached of the difficulties that have arisen in reference to the grant. With regard to registration, the bishops are quite ready to agree to the formation of

a register on condition that they are satisfied as to the persons who are to make it, the principle on which they are to proceed, and that due allowance is made for the special circumstances of nuns and other religious teachers.

THE Schoolmasters' Association, representing the heads of Protestant schools at its annual meeting on October 5th, thanked Mr. Birrell for the grant, and expressed its approval of the conditions of the scheme with some minor suggestions for its improvement. These suggestions were: (1) That special consideration should be given to the circumstances of small schools which will find it difficult to comply with the conditions; (2) that there should be a differentiation in the minimum salaries of resident and non-resident teachers; (3) that six months' notice would be found to be unworkable; and (4) that teachers should be represented on the committee which will frame the scheme of registration.

THE following is a summary of the prizes and exhibitions which were awarded by the Intermediate Commissioners on the results of the recent examinations. The awards are in four groups, in each of which the marks in English and two other honour subjects count, in addition to those of the two subjects mentioned: Group A, Greek and Latin; Group B, two of the following—French, German, Irish, Latin; Group C, two mathematical subjects: Group D, one science and one mathematical subject.

Boys.

Senior Grade.

Group	A	B	C	D	Total
First Class Exh. £30	3	5	4	4	16
Second Class Exh. £20	6	6	6	6	24
£3 Prizes	5	9	6	4	24
£2 "	3	6	5	2	16
£1 "	3	3	4	7	17
	20	29	25	23	97

Middle Grade.

First Class Exh. £20	5	4	7	8	24
Second Class Exh. £15	8	8	8	8	32
£3 Prizes	13	29	14	13	69
£2 "	6	12	8	3	29
£1 "	3	9	5	0	26
	35	62	42	41	180

Junior Grade.

First Class Exh. £15	10	10	10	10	40
Second Class Exh. £10	15	15	16	15	61
£3 Prizes	19	48	17	16	100
£2 "	11	60	9	5	85
£1 "	5	32	12	0	58
	60	165	64	55	344

GIRLS.

Senior Grade.

First Class Exh. £30	—	5	3	—	8
Second Class Exh. £20	—	11	3	2	16
£3 Prizes	—	6	—	—	6
£2 "	—	8	1	2	11
£1 "	—	9	1	—	10
	0	39	8	4	51

Middle Grade.

Group	A	B	C	D	Total
First Class Exh. £20	—	8	5	3	16
Second Class Exh. £15	—	11	6	7	24
£3 Prizes	—	11	1	2	14
£2 "	—	11	—	2	13
£1 "	—	14	2	3	19
	0	55	14	17	86

Junior Grade.

First Class Exh. £15	1	9	9	5	24
Second Class Exh. £10	—	13	11	9	33
£3 Prizes	—	11	19	9	39
£2 "	—	15	4	5	24
£1 "	—	9	6	3	18
	1	57	49	31	138

WELSH.

THE conference of the National Federation of Class Teachers at Merthyr was not so laudatory as to the present condition of Welsh education as is usual on Welsh platforms. A resolution was passed directing attention to the "miserably inadequate scales of salaries for certificated class teachers adopted by several education authorities," and expressing the opinion that those rates of remuneration would inevitably lead to a serious shortage in the supply of teachers, and do much to impede educational progress. The resolution further maintained that it was unfair to differentiate between salaries paid to collegiate and non-collegiate certificated teachers, and put forward a standard scale for certificated class teachers in all primary schools in the provinces: men, minimum £90, maximum £200; women, minimum £80, maximum, £160. It was stated that there had been a diminution in the number of candidates for the teaching profession of more than 60 per cent. It was said that "Wales had cause to blush greatly for the lowness of teachers' salaries, and that some of the counties had no scale at all."

THE Royal Commission on Ancient and Historical Monuments in Wales and Monmouthshire has issued its second "inventory," dealing with the county of Flint. The volume gives the parishes of the county, maps, and the various monuments considered by the Commissioners as especially worthy of preservation. The illustrations are particularly good. In an introduction the Commissioners point out that the antiquities of Flintshire, though varied and important, have been, for the most part, unrecorded and undescribed. Until a period that is subsequent to the operations of the Commission in the county, there did not exist within its bounds any society the main purpose of which was the exploration and description of its archæological remains. The Commissioners express the hope that Flintshire will yet produce a scholar who will reconstruct the past.

THE last degree examinations of the University of Wales include the awards of the M.A. degree on the result of thesis work. Amongst the successful work submitted, the following subjects were chosen by students. In Latin: "The Poems of Virgil considered in connection with the Geography of Italy, including the Natural Features and Animal and Plant Life"; "The Monumentum Ancyrannum

compared with the other authorities for the Life of Augustus"; and "The Political and Social Organisation of Gaul under the Roman Empire." In English: "The Women of George Meredith"; "The Letter-writers of the Eighteenth Century"; and "The Lyrics and Songs of the Elizabethan Drama." In Welsh: "Phylipiaid Ardudwy, with the Poems of Sion Phylip, in the Cardiff Free Library Collection"; "Some Points of Contact between Welsh and Breton"; and "Bardoniaeth Tomos Prys o Blas Ivlyn." In German: "The Classic, Romantic, and specific Spanish Elements in the Dramas of Grillparzer and Haln," and "Some Phases of the Historical German Drama since Schiller's Death; the patriotic, the antique Roman, and the revolutionary." In history: "Wales and the Marches in the Reign of Edward II., with special reference to Glamorgan and the Revolt of Llewelyn Bren," "Hubert de Burgh," and "The Welsh Church under Edward I." In philosophy: "Some recent Theories with regard to the Meta-physical Foundations of Ethics." In political science: "Christian Socialism: its Rise and Development, its Economic and Social Results, and its Relation to other Working-class Movements," "The History of the Growth and Organisation of the Copper Industry of Swansea and District," and "The Economic Organisation of the Mediæval Borough, with Special Reference to Leicester and its Guild Merchants." The degree of D.Litt. was awarded on the subject of "The Mediæval Boroughs of Snowdonia."

The Cardiff Juvenile Employment Committee has received a report from the employment officer of the work done by the bureau. After praising the work done at the schools by the teachers, the officer stated that owing to the disinclination of parents to go to the schools for interviews, it was difficult to ascertain their views as to the industrial future of their children. Quite a good proportion of applicants for work at the bureau were secondary-school children, whose higher training fitted them for the better-class vacancies that were available. The progress made in every department of the work was shown by the facts that in the four months between June and September 315 boys and 146 girls were placed in situations. In the same period sixteen apprentices (fifteen boys and one girl) were placed. But there have been difficulties in connection with the placing of apprentices. There has been no lack of boys and girls who wished to learn a trade, but up to the present there have been more applicants than vacancies. Many apprenticeships cannot begin until a boy attained the age of fifteen or sixteen, and great difficulty is experienced in placing the lad in a situation (during the waiting period) which has any relationship to the trade to be eventually followed.

Southey's Letters. A Selection by M. H. Fitzgerald. 550 pp. (Frowde.) 1s.—This is one of the books that is more useful to anyone wishing to know the history of literature than so many primers. Dorothy Osborne's, Burns's, and Cowper's letters are not much read; but any library should have a shelf for letters and journals. They strike the note, and you hear the echo; you get your facts in their proper places.

EDUCATION AND LIFE.

(1) *Psychology, the Study of Behaviour.* By W. McDougall. 254 pp. ("Home University Library.") (Williams and Norgate.) 1s. net.

(2) *Outline of a Course in the Philosophy of Education.* By J. A. MacVannel. 204 pp. (Macmillan.) 4s. net.

(3) *Social Aspects of Education.* By Irving King. 421 pp. (Macmillan.) 7s. net.

(4) *All the Schools of All the People.* By W. Hawley Smith. 346 pp. (Macmillan.) 6s. 6d. net.

(5) *Education by Life.* By various writers. Edited by H. Brown Smith, Lecturer in Education, Goldsmiths' College. 211 pp. (Philip.) 3s. 6d. net.

As its author's reputation might have led one to expect, Mr. McDougall's contribution (1) to the "Home University Library" is a thoroughly sound piece of work. To many educated people (teachers among them) the present state of psychological science calls for a brief and lucid statement by a master-hand, and we can assure those who take up this little book that they will not be disappointed. In the first chapter good reasons are given for adopting what may at first sight seem the rather curious definition of psychology as "the study of the behaviour of living beings." The chapter on "The Structure of the Mind" sums up clearly and usefully the writer's position on the significance of leading terms in the science. The succeeding chapters are devoted to the several departments of psychology. All these chapters are good, but we commend especially to our readers' notice that on the study of childhood and that on social psychology, the latter of which throws a vivid light on some problems of school discipline. Either an index or a copious table of contents would have increased the value of a book of such comprehensive scope, though it is a shame to ask more for one's shilling.

The title of Prof. MacVannel's book (2) suggests that it is not one to which a teacher would go for any immediately practical purpose. We notice it in these columns only for the sake of those who have a taste for reflecting upon the wider issues of the teacher's calling. The book is a mere sketch, a revision and extension of a syllabus of lectures, but we commend it as a worthy attempt to trace the significance of education in its main outlines as a conscious effort towards human evolution—to discover its place and significance in human experience.

Dr. King's book on "Social Aspects of Education" (3) is a collection of papers drawn from various sources, together with annotated bibliographies and suggested problems for further consideration. The form which the work thus assumes is probably the best that could be devised in the present state of the subject. The first part deals with the external social relations of the school. Here the problems of rural schools, home and school, the school as a social centre and vocational education, are among those discussed. The second part deals with the internal social life of the school, *i.e.*, with such matters as self-government by the pupils, personal influence and leadership, and the social aspects of the learning process and of moral training. We think the writer has done good service in bringing together into one volume so much suggestive material upon a phase of education which, especially in view of recent developments in sociology and social psychology, is fast coming to the front.

The decision of the chief civilised nations to educate in the State schools "All the Children of All the People" (4) is but of yesterday, and the solution of the tremendous problem involved is at best still in

the tentative and experimental stage. So far the strong tendency has been to educate everybody according to pattern, to ignore individuality, to forget that all children are "born long" or "born short" in one way or another. Such is the main thesis of this rather remarkable book, which brims over with good humour and common sense. Some readers on this side of the water may be a little worried by the Americanisms of the author's style, but there can be no doubt that the book raises questions of high import, and discusses them in a most interesting manner.

The last book (5) is so good that we feel just a little annoyed because it is not better. The title, "Education by Life," accurately describes the entirely commendable point of view from which the book is written, but gives no hint of the fact that it deals exclusively with the education of young children. It comprises thirteen essays, each written by a specialist, upon various aspects of infant-school and kindergarten teaching, together with a general introduction by the editor. Obviously this plan has great advantages. The chief disadvantage is a formal, though not a real, lack of unity, as when we pass with an awkward jolt from religious teaching to adenoids and measles. Again, to have been of great use to young teachers, some of the chapters should have been at least twice as long, so that the writers might have been able to exemplify their points more fully. But in spite of all this, we regard the book as the best of its kind now on the market, for without exception the contributors are evidently thinkers as well as teachers. We must add that the number of misprints is rather large, and that a book of such multifarious contents should have been provided with an index.

THE GREEK GENIUS.

The Greek Genius and its Meaning to us. By R. W. Livingstone. 250 pp. (Oxford: Clarendon Press.) 6s. net.

So much has been written of Greece that it would seem hard to find anything new; and there is perhaps not much in this book that is new; but it is put from a new point of view, and for a definite purpose. We all knew, with our minds at least, that the Greeks had a keen sense of beauty; Mr. Livingstone brings out well how it pervaded his whole life, while we are lucky if we can be blind to ugliness. Whole regions of modern life are ugly; suburban villas, the "motor omnibus arena," as he neatly calls it, all sounds outside the concert-room and some inside. Greece could never have created such a civilisation. The perfection of form seen in Greek literature and art is the expression of the Greek mind, which was keenly sensitive to this.

Another noteworthy point is the directness of the Greek, who goes straight to the point without the roundabout expressions of our modern speech. He describes things, and leaves us to supply the emotion. This is closely allied to his truth: he sees things as they are, and is not afraid to describe them without "the morbid pathology and charming affectations of modern literature." As an instance of truth take the words that Xenophon puts into the mouth of his Athenian gentleman: "Unless we know what we ought to do, and take pains to bring it about, God has decided that we have no right to prosperity; but if we are wise and painstaking, he grants it to some of us, though not to others." The combination of this sense of form and beauty with the love of truth produces those sentences that are perfection, like

Sappho's picture of the last leaf: impossible to translate, because in our world the associations are so different.

We are grateful to Mr. Livingstone for his analysis of the virtues of poetry, in which he shows us how to detect what is best; how much of it is so artificial that it does not deserve to live. We are grateful that he implies the insincerity of what is called romantic, and very glad we should be to see this German weed rooted out. But we do not go so far as he in condemning Theocritus as "devoid of virility or real human interest"; who does not remember the old woman at the show, the quarrelling peasants over their cups, the humour and pathos of the Cyclops' lament? These are certainly real. Nor can we agree in seeing mysticism in Plato's account of the poet as a light thing in which there is no poetry until God uses him as a mouthpiece; Plato is bantering Ion, as usual with a hint of profundity in his banter. We do not think it right either to speak of the "sin" of Ædipus: what he did was done unwittingly, and the whole tragedy lies in the fatal consequences of a mere mistake, due at most to a fault of temper.

But we do not wish to end with complaints. The book is full of good sense, and throws light at many points upon Greek life. It will help the student to know what to look for; perhaps it may help to purge the faults of his own style.

THE TEACHING OF DOMESTIC SCIENCE.

(1) *Experimental Domestic Science.* By R. Henry Jones. 227 pp. (Heinemann.) 2s. 6d.

(2) *The Chemistry of Housecraft.* A Primer of Practical Domestic Science. By Lucy Hall and Ida Grünbaum. 78 pp. (Blackie.) 8d.

(1) In the preface the author states that the book "provides a suggested course for domestic science schools and girls' schools generally, . . . based upon the view . . . that science can be directly and adequately taught in the kitchen, . . . that a previous training in elementary science is not indispensable, as the principles of science can often be made quite clear by drawing upon everyday experience, and largely by the aid of kitchen utensils and commodities." The suggested course consists of a series of experiments upon the following subjects in the order as stated: density, milk, tea, coffee, cocoa, the percentage of solid matter in various food-stuffs, the changes taking place in cooking meat by different methods, vegetables, flour, bread, hardness of water, soaps, ventilation. In addition, there is a chapter giving an introduction to chemical theory. For quantitative experiments, in place of the ordinary balance, the author generally recommends the use of a common spring balance or a letter weigher. This involves in most cases using relatively large quantities of material. As a result many of the experiments, especially those involving the determination of the amount of water in a given substance, demand far more time than could conveniently be given to them in the ordinary school.

As a rule a book on domestic science is either strong in pure science and weak in the application of science to domestic work, or *vice versa*. In this case neither the pure science nor its applications to household work can be commended. In addition the book suffers seriously from the slipshod English which the author too often employs. As examples of these defects we may mention statements such as the following: "When the amount of material in anything (as expressed by its weight) is connected

with a specified unit volume of it, this combination is known as density" (p. 3); "In the determination of the density of one particular substance, different results are obtained according to the vessels used" (p. 4); "Milk solids are also perfect in their nature of constituents" (p. 21); "While the forces of nature operate continually for good, our ideas of nurture are often in direct antagonism" (p. 34); "Temperature is level, or degree of heat" (p. 39). More serious, perhaps, are the misleading and sometimes quite erroneous ideas which are given upon such matters as "perfect foods" and "carbohydrates" (p. 15); the dietetic value of milk (p. 16); Pasteurisation (p. 17); the dietetic value of beef tea (p. 58); the composition of oils, fats, and soaps (p. 185); and the explanation of the action of soap as a detergent (p. 189).

From the foregoing it is obvious we cannot recommend the book either to the general reader or to the student. Teachers interested in the subject matter of the book may, however, obtain useful hints for experimental work in the chapters upon flour, bread, and meat respectively.

(2) Miss Hall and Miss Grünbaum have collected in their little primer a considerable number of interesting experiments dealing with the sugars, fats and oils, soap, and a number of common food-stuffs. The instructions are clear and concise, but more space might well have been allotted, perhaps, to the explanation of the changes observed and to the discussion of the bearing of the results obtained in the experiments upon actual practice in the kitchen and the laundry. There are a few weak points in detail in certain of the experiments. The action of caustic soda upon zinc salts is incorrectly described (p. 11). The statement that "alkalies dissolve fats" (p. 12) needs modification. The phrases "chalk water" and "calcium sulphate water" (p. 27) are open to objection. Rennet does not convert milk into a solid in the ordinary sense of that term (p. 48). The instructions for the preparation of artificial gastric juice (p. 31) need revision. The evolution of ammonia (p. 48) is not a satisfactory test for proteids.

RECENT SCHOOL BOOKS AND APPARATUS.

Modern Languages.

The Oxford Book of German Verse. Edited by H. G. Fiedler. xii+596 pp. (Oxford: Clarendon Press.) 6s.—Prof. Fiedler is to be congratulated on producing a scholarly anthology, which fully deserves the praise given by Gerhart Hauptmann in a short preface. Starting with the anonymous gem, "Du bist mein, ich bin dein," found among the papers of a twelfth century monk, and ending with such writers as Ricarda Huch and Otto Julius Bierbaum, we are given more than 500 poems from the rich treasure-house of German song. The editor has supplied excellent modern German renderings of the medieval verse, and has modernised the poems from the fifteenth and sixteenth centuries. He has also given brief notes, in which he includes references to the most notable musical compositions of the poems. Sometimes we cannot help regretting that exigencies of space have led to the printing of part only of a poem; for instance, No. 10, where only one of the three verses of Walther's noble elegy is given, and No. 50, where of the fine ballad, "Es waren zwei Königskinder," only three verses have been printed. The seventeenth century has perhaps been somewhat neglected; but the last two centuries are very well represented, dramatic

verse being drawn upon as well as lyric verse. The extract from Lessing is the story of the Three Rings from "Nathan"; some of his epigrams might have been added. It is surprising to find none of Bürger's admirable sonnets included; in another edition they might take the place of some of Höly's poems. Goethe and Schiller between them take up a sixth of the whole book. It is gratifying to find Mörike adequately represented. Of Klaus Groth there are only poems in High German; it seems a pity that dialect poetry should have been excluded. In judging an anthology it is easy to criticise the selection; no two lovers of verse would agree in their choice. We conclude by congratulating Prof. Fiedler on the admirable skill and taste with which he has carried out his task.

W. Hauff, Fatmes Errettung. Edited by D. L. Savory. viii+136 pp. (Rivingtons.) 1s. 6d.—Prof. Savory has added this well-known story from "Die Karawane" to the series of direct method easy German texts, of which he is the editor. In preparing it for school use he gives evidence of his scrupulous care and of his eminent skill as a reform teacher. The explanations of the text and the exercises are admirable, and will prove of much value.

Mlle M. Capus, Pour Charmer nos Petits. Edited by C. Fairgrieve. 118 pp. (Harrap.) 1s.—A nicely got-up edition of these well-written children's stories, arranged in pairs: a prose version of a La Fontaine fable being followed by a modern story pointing the same moral. The reading matter will appeal to young beginners, and they will like the pictures, although these are not always in full agreement with the text; thus the goat on p. 7 ought to have *pattes blanches*, and the coach on p. 56 should have *beaucoup de malles et de paquets* on top. Some of the grammar questions are rather difficult, and the vocabulary is more extensive than would seem advisable in the case of young beginners; but the book on the whole is distinctly attractive.

Le Petit Bonhomme. Adapté par E. Magee. 48 pp. (Blackie.) 4d.—A little book, in simple French, telling of "Le Petit Bonhomme," "Les Trois Ours," "La Famille Lapin," and "Le Lapin Sage," with French questions on the text, no notes, and a French-English vocabulary. There are some capital illustrations by Mr. John Hassall and others. The text of the stories fills about nineteen of the little pages in large type; it is well and carefully printed.

Classics.

Publi Vergili Maronis opera. Scriptorum Classicorum Bibliotheca Riccardiana. Two vols. (Apud Macmillan et socios et P. H. Lee Warner, Mediceae Societatis librarium.) £1 11s. 6d. net boards; £2 12s. 6d. limp vellum; £3 10s. printed on vellum.—We have already noticed the Medici Press edition of Horace. The Virgil is equally deserving of praise. Print, ink, and paper are excellent. We have only one qualification. The full pages please the eye; but where a number of speakers come on a page, as in the eclogues, the names would look better if printed in small capitals; the large capitals dazzle the reader if they come close together (as on page 11, where they come every two lines). The first volume contains eclogues, Georgics, and Æneid i-iv., the second Æneid v.-xii.; the minor poems are not included. The text is edited by Nettleship and Postgate. We hope book-lovers will not fail to support this fine series of texts; it is a real pleasure to handle them.

Bell's Latin Picture Cards: Speculum Imperii Romani. Edited, with vocabularies and exercises, by F. S. Granger. Sixteen cards. 1s. 3d. net.—This is an excellent idea well carried out, and we venture to predict that the cards will have a wide sale. They are of the size of the oblong postcard, so that they can be used in a class. A large wall picture is better, no doubt, but as there are none as yet which are quite suitable, and few of any kind, these will be useful. Some of the pictures are rather small, and contain a good deal of detail; others, such as the plough, are not overloaded, and are quite large enough. The schoolmaster on No. x. has a very smug look, and the scene can scarcely be typical; the pupils all seem to be very much at their ease and the master stands. The archæological detail seems to be accurate, but we should be glad to be reassured in the case of Catiline before the senate. A little pamphlet explains the aim of the cards. The cards are sold not only in series of subjects, but in sets of sixteen uniform, or sixteen in either of the two halves, the first eight illustrating prose writers (Cæsar, Livy, Cicero, &c.), the others illustrating poets (Virgil, Horace, Ovid, &c.) The titles are: i., De Agmine; ii., De Castris; iii., De Portu et Navibus; iv., De Obsidione; v., De Viis et Viatoribus; vi., De Foro Romano; vii., De Vicis Romanis; viii., De Senatu in Templum Convocato; ix., De Ædibus; x., De Instituendis Pueris; xi., De Fundo et Arvis; xii., De Pratis et Vinetis; xiii., De Rebus Sacris; xiv., De Circo; xv., De Theatro; xvi., De Cena. On the back are short vocabularies and questions; the latter might have been omitted and the former increased, with advantage.

Clari Romani: Augustus. Edited by A. J. Spilbury. 122 pp. (Murray.) 1s. 6d.—The present number is easier than the rest of the series, but it is still too hard for beginners. Questions and exercises are as before. We have already directed attention to the merits of the series, but we ought not to pass by some faults that should be amended. The sources should be indicated, and a hint given how the text has been treated. Quantities, if marked, should be consistent, or they are misleading; here long or short is marked now and then, arbitrarily, in the index. Some of the questions are bad. Thus, p. 9, "What other words besides *fas* are indeclinable in Latin?"; p. 41, "Give the other cases in use of *opem, vicem.*" Our misleading old friend the generic subjunctive reappears (p. 75), and *allegavit* is used in the sense of simple *dixit* (p. 41). The Latin questions, of course, can only be models; such things must be made at the moment to be useful.

English.

Cambridge History of English Literature: The Age of Dryden. Edited by Dr. Ward and Mr. Waller. 515 pp. (Cambridge University Press.) 9s. net.—This volume contains sixteen chapters and the usual useful bibliography. Every reader will turn to his favourite subject first; but what is particularly noticeable is the number of subjects which are not generally comprised in such a history. The Restoration drama one would expect, along with the Court Poets and the Essay; but the Early Quakers, the progress of science, and legal literature are assuredly new. The chapter on Dryden has a most admirable bibliography, but the itch for improving the work of his betters does not receive the notice it demands. The life of the poet, too, might be made more thrilling. Dryden was not a tame man in a tame age. It is not a little remarkable that no tolerably cheap reprint of Dryden's plays is found in the market; this silent verdict is eloquent. "Hudibras," a never popular

poem, belongs, of course, to the satire of the age, but it is at least free from the "debauched riot" and animalism of the political satirists. The really beautiful chapter on the Early Quakers is sandwiched in between the debauched riot referred to and Restoration Drama—strange bedfellows. For Wycherley to be treated as a moralist by the modern critic is no doubt good criticism, but it is as much an insult to decency in any age as it would be to hear King Solomon preach on monogamy. The truth is that biography does not belong to literature at all, except in the very rare instances where it is everything. Why whitewash a black Wycherley? The criticism of Cowper is admirable—the man lives again in Mr. Whibley's few pages, but the poet receives scant recognition. Pepys is an instance where the man and his work are interwoven, but (*pace* all the critics) the great Diary is not literature as Selden's "Table Talk" is. The whole volume, full of interest and written by acknowledged experts, is of a piece with its predecessors. When finished, the History will be a most notable achievement.

The Ivory Gate. In Four Books. 122 pp. each. (Dent.) First and Second Books, 8d. each; Third and Fourth Books, 10d. each.—Mr. Reed Moorhouse is already known for "The Golden World," and some of the poems in that fascinating book are reprinted in "The Ivory Gate." It is long since so literary and poetical a collection has been offered to children, and those who test the books will be ready, we think, to give them a high place. Even the most trivial songs have the right music. We note one error. Henley is not likely to have written the "Joy, Shipmate, Joy," of Walt Whitman.

A Dickens Reader. By Mrs. J. C. Smith. 191 pp. (Frowde.) 1s. 6d.—An admirable preface of a page and a half suggests that Dickens is not a favourite with children: but should he be? We think this reader is best suited for higher classes; it contains twenty-seven extracts, and includes the Yarmouth Storm, Trotty Veck, and the immortal Crummies. The adult who loves Dickens might almost be tempted to learn it by heart.

History.

Mr. Fletcher has written a *Teacher's Companion* to the "School History" he wrote last year in collaboration with Mr. Rudyard Kipling, which was reviewed in THE SCHOOL WORLD for September, 1911. His object seems to be: (1) to supply a bibliography; (2) to correct or modify some of his statements; and (3) to answer a certain reviewer whom he calls on p. 35 "ignorant," and on p. 58 "disingenuous." If our readers will turn to these pages and to the correspondence in the issue of THE SCHOOL WORLD for April last, they will not have much difficulty in identifying this anonymous person. On p. 35 Mr. Fletcher writes: "Martin Luther joined the Augustinian Eremites at Erfurt as a novice in 1505, and was professed in the next year. [This note is inserted because an ignorant reviewer attacked the authors for calling Luther a monk.]" We will not quote such a well-known manual as Low and Pulling's "Dictionary of English History," or other text-books, but will quote from a book which Mr. Fletcher has presumably read, since he recommends it on p. 22, Dr. Jessopp's "Coming of the Friars." In the introduction to the sketch, "Daily Life in a Mediæval Monastery" in that volume (p. 115, eighth edition), Dr. Jessopp says in the text, "Luther, strictly speaking, was not a monk at all," and in a footnote, "He belonged to the order of *Friars* Eremita under the Augustinian rule." Is this disingenuousness on the

part of Mr. Fletcher? or is it want of knowledge? Does he "mark, learn, and inwardly digest" the books he has "read"?

The Cambridge Modern History Atlas. Edited by A. W. Ward, G. W. Prothero, S. Leathes, and E. A. Benians. xii+229 pp.+141 maps. (Cambridge University Press.) 25s. net.—At last the Cambridge Modern History is complete with its twelve original and two supplementary volumes. We need not dwell now on the work as a whole, with all its excellencies, and with some defects (some of them arising naturally out of the composite authorship, others which perhaps might have been avoided). It will remain for some time the standard history of modern Europe for English-speaking peoples. The atlas which now completes the work is, of course, good, though there are no maps which strike us as improvements on what has already been published. They are generally clear, though in some instances it is rather difficult to tell from the pattern colours which territory is which, and where boundaries should run, but they are intended, of course, to be used with the history, and Mr. Benians's introduction tends to make things clear. There is an index to that introduction, and another to the maps.

Mathematics.

A School Algebra. Parts II. and III. By H. S. Hall. x+250+xxi pp. (Macmillan.) 2s. 6d.—These two parts complete the work designed to supersede the older one, which appeared under the names of Hall and Knight. The latter work possessed features which caused it to be very favourably received by teachers, the sets of examples and the worked examples in the text being notably superior to those in the majority of text-books current at the time of its first appearance. In these respects the new work is in no way inferior to its predecessor. The influence of recent discussions on the teaching of algebra is manifest in the treatment of the binomial, logarithmic, and exponential expansions. Finding that the spirit of the times is against the presentation of incomplete, though plausible, proofs of these theorems, Mr. Hall contents himself with enunciating them, and giving examples of their practical use. We are by no means satisfied that this is the best way of dealing with the situation. To give a pupil a formula without indicating its relationship to his previous knowledge is not educational. It may be done in the workshop, but ought not to be done in the school.

Some of the definitions and explanations are not very satisfactory. "The root of a quantity which cannot be exactly determined is a surd." What cannot be exactly determined, the root or the quantity? Again we read, "An irrational quantity or expression is one which necessarily contains one or more root signs." This definition makes such numbers as $\log_{10} 2$, e , π rationals. Another instance of careless writing occurs in the chapter on graphs, where it is stated that "when Q moves up to P along the curve, and ultimately coincides with it, the line PQ becomes the tangent at P ." Thoughtful boys will fail to see why, under these conditions, the direction is not quite indeterminate. These are examples of blemishes which ought to be removed from a book which is sure to be largely used.

Differential and Integral Calculus. By L. S. Hurburt. xviii+481 pp. (Longmans.) 9s.—This elementary text-book is written with the view of meeting the requirements of ordinary pass students in colleges and engineering schools. Even those, however, who intend to read for mathematical honours might use it

with profit, as an introduction to the subject, for they would obtain from it a firm grasp of the fundamental principles. It is unfortunately the case that most of the books for pass students treat such matters as the theory of limits, continuity, partial differentiation in a very slipshod manner; it is therefore refreshing to come across a book in which the student at the very outset is made to understand that the value of a function for a particular value of the variable is not necessarily the same as the limit of the function for that value, and that other forms of discontinuity are possible besides those which arise from infinities. Of course, none but elementary examples of such singularities are given, but the student will at any rate have nothing to unlearn if he goes on to more advanced work. Considerable space is given to the tracing of curves from their cartesian, polar, and parametric equations; there is a chapter on the applications of integration in kinematics, and four chapters on the elements of analytical solid geometry precede those dealing with partial differentiation. The volume concludes with an introduction to ordinary differential equations.

Science and Technology.

We have received from Messrs. A. Gallenkamp and Co., Ltd., of Sun Street, Finsbury Square, London, a copy of their new "Catalogue of Apparatus for Botanical Laboratories and the Study of Plant Physiology." The catalogue extends to 200 pages, and is very comprehensive; it seems to include most of the apparatus which could be conceivably required in such work. Of special interest are the numerous diagrams showing apparatus set up for the performance of experiments described in standard text-books of plant physiology; a useful index of these experiments is given on p. 193. A good selection of microscopes and accessories suitable for school use is also described and illustrated, a large list of botanical microscope slides being notable for the low prices quoted. A wide range of botanical material, fresh and preserved, for laboratory and class work, is also listed. The catalogue shows a close acquaintance with the practical needs of schools and colleges.

Bird Life of the Seasons. Edited by Charles A. Hall. viii+84 pp. (Black.) 1s. 6d. net.—About eighty of our commoner birds, with their nests and eggs, are described in four chapters headed with the names of the seasons. No attempt is made to group the birds according to blood-relationship or habitat, and even the classification under seasons is somewhat arbitrary, so that the book as a whole has a disconnected effect. The descriptions, as well as the reproductions from photographs, will be helpful to the young naturalist. Some of the eight coloured plates may lead the beginner to expect brighter tints than he is likely to find in the birds, but the plate illustrating eggs is admirable. Very useful also is a diagram showing the names given to the different regions and feather-groups of a bird, since a knowledge of these is necessary for accurate descriptions.

The Monkeyfolk of South Africa. By F. W. Fitzsimons. xvi+167 pp. (Longmans.) 5s. net.—Boys and girls with a taste for natural history will welcome this pleasant volume, by the director of the Port Elizabeth Museum. Mr. Fitzsimons tells us that the anecdotes, which the animals themselves are supposed to relate, are founded on strict fact. The assurance will enhance considerably the interest, to grown-up readers, of the autobiographies of a baboon, a Guenon monkey and a Moholi lemur respectively. Quite unobtrusively, the book contains a good deal of scientific

zoology. A useful glossary is given at the end. The get-up of the book is very attractive, the numerous illustrations—mostly from photographs—being of special interest and of high technical quality. In short, the volume is a very sound investment as a gift book. We shall look forward to the books which the author promises on other groups of South African animals

Miscellaneous.

The Cambridge Pocket Diary, 1912-13.—This diary meets a need which has often been felt, since it covers the academical year beginning with October rather than the calendar year beginning with January. The diary is published in three forms: (1) in roan limp with rounded corners and gilt edges, price 1s. net; (2) in Persian calf with a pocket attached to the back containing a pencil and a pocket in the cover for stamps, &c., price 2s. net; (3) in Russia extra, with a pencil, price 2s. 6d. net.

EDUCATIONAL BOOKS PUBLISHED DURING SEPTEMBER, 1912.

Modern Languages.

"Le Texte Expliqué." Recueil de Morceaux Choisis des Auteurs Français, Arrangés en Groupes selon le Sujet Traité, avec Explications détaillées rédigées en Français. Cours Moyen. Selected and edited by E. J. A. Groves. (Blackie.) 2s.

"Test Papers in French." Each Paper consisting of a French Passage for Unseen Translation, Questions on Grammar based upon it, and a Questionnaire. By K. H. Bird. (Blackie.) 1s.

"Das erste Jahr des deutschen Unterrichts." By Prof. D. L. Savory. 192 pp. (Clarendon Press.) 2s. 6d.

"Science French Course." By C. W. Paget Moffatt. 316 pp. (Clive.) 3s. 6d.

"Ein modernes Aschenbrödel." By Luise Delp. (Harrap.) 1s. 6d.

"Continents, Cités, Hommes." A New French Reading Book and Aid to French Composition for Higher Forms in Schools and Candidates for Public Examinations. By C. C. Perry and A. Turquet. 212 pp. (Macmillan.) 2s.

French Grammatical Readers. Edited by A. R. Florian. Series A. "Le Blocus." By Erckmann-Chatrian. "L'Évasion d'Edmond Dantes." By Alexandre Dumas. Series B. "Nouvelles Gênévoises." By Rodolphe Töpffer. "Le Capitaine Pamphile." By Alexandre Dumas. (Rivingtons.) 1s. 6d. each.

French Readers according to the New or Direct Method. By F. Victor Massard. Junior Series, 1s. 6d. each. "La Mare au Diable." By George Sand. Senior Series, 2s. each. "Bug-Jargal." By Victor Hugo. "Pêcheur d'Islande." By Pierre Loti. (Rivingtons.)

"Der Stadtpfeifer." By W. H. Riehl. Forming a new volume of Rivington's Direct Method Easy German Texts. Edited by Prof. D. L. Savory. 1s. 6d.

Classics.

"Gaius Julius Cæsar Gallic War." Book IV. By E. S. Shuckburgh. xvi+90 pp. (Cambridge University Press.) 1s. 6d.

"The Wars of Greece and Persia. Selections from Herodotus." Edited by W. D. Lowe. 128 pp. (Clarendon Press.) 2s. 6d.

Lingua Latina Series. Edited by W. H. D. Rouse and S. O. Andrews. "Primus Annus." By W. L. Paine and C. L. Mainwaring. 138 pp. 2s. "Decem

Fabulae Pueris Puellisque Agendae." By W. L. Paine, C. L. Mainwaring, and E. Ryle. 94 pp. 1s. 6d. (Clarendon Press.)

Tacitus: "Histories." Translated by W. Hamilton Fyfe. Two vols. 208+244 pp. (Clarendon Press.) 3s. 6d. net each.

"An Elementary Greek Grammar." By E. E. Bryant and E. D. C. Lake. 124 pp. (Clarendon Press.) 2s. 6d.

Horace: "Epistles, Book I." Introduction, Text, and Notes. By F. G. Plaistowe and J. F. Stout. 90 pp. (Clive.) 1s. 6d.

"New Junior Latin Reader." By A. J. Tate. 252 pp. (Clive.) 2s.

"Latin Vocabularies for Preparatory Schools." By S. H. J. Russell. 56 pp. (Year Book Press.) 2s.

English: Grammar, Composition, Literature.

"The Ethical and Religious Value of the Novel." By the Rev. Ramsden Balmforth. 240 pp. (George Allen.) 5s. net.

"The Albion Readers." Book I. 128 pp. 10d. Book II. 160 pp. 1s. Book III. 192 pp. 1s. 2d. Book IV. 224 pp. 1s. 4d. Book V. 256 pp. 1s. 6d. (Edward Arnold.)

"Précis Writing." (Second Series.) By E. A. Belcher. (Edward Arnold.) 2s. 6d.

"English Exercises for Higher Classes." By Elizabeth B. Bruce. 64 pp. (Blackie.) 8d.

Thackeray: "The Rose and the Ring." Arranged for Acting by E. E. Ohlson. (Little Plays for Acting.) 48 pp. (Blackie.) 4d.

Burke: "Reflections on the French Revolution." By W. Alison Phillips and Catherine Beatrice Phillips. lvi+312 pp. (Cambridge University Press.) 4s.

Goldsmith: "She Stoops to Conquer." Edited by G. A. F. M. Chatwin. 114 pp. 1s. 6d. net. "The Good-natur'd Man." Edited by G. G. Whiskard. 104 pp. 1s. 6d. net. (Clarendon Press.)

Kingsley: "Hereward the Wake." Edited by A. D. Innes. 404 pp. (Clarendon Press.) 2s. 6d.

"Byron's Child Harold III." Edited by H. F. Tozer. With Goldsmith's "Traveller" and "Deserted Village." Edited by G. G. Whiskard. 389 pp. (Clarendon Press.) 2s. 6d.

"Junior Course of English Grammar." By A. M. Walmsley. 222 pp. (Clive.) 1s. 6d.

"Lessons from Nature's Workshop." By W. J. Claxton. (Harrap.) 1s.

"Selections from Chaucer." By Prof. G. C. Child. 214 pp. (Harrap.) 2s. 6d.

Hawthorne: "Tanglewood Tales." Part II., Circe's Palace, The Pomegranate Seeds, The Golden Fleece. Edited by J. H. Fowler. 156 pp. (Macmillan.) 1s.

History.

"Russo-Japanese War." Part II. (Special Campaign Series.) By Capt. F. R. Sedgwick. 356 pp. (George Allen.) Double volume, 10s. net.

"Tillage, Trade and Invention: an Outline of Industrial History." By George Townsend Warner. 198 pp. (Blackie.) 2s.

"Gloucestershire." (Oxford County Histories.) By W. H. Weston. 256 pp. (Clarendon Press.) 1s. 6d. net and 2s. 6d. net.

Citizens of the Empire: an Introduction to Civics." By Irene Plunket. 168 pp. (Henry Frowde and Hodder and Stoughton.) 1s. 6d.

"The Story of Wellington." By F. H. B. Wheeler. (Harrap.) 3s. 6d. net.

"In Georgian Times." By Edith L. Elias. 260 pp. (Harrap.) 2s. 6d. net.

"Leading Figures in European History." By R. P. Dunn Pattison. (Rivington.) 6s. net.

Geography.

Cambridge County Geographies: "Radnorshire." By Lewis Davies. xii+156 pp. (Cambridge University Press.) 1s. 6d.

"Map Projections." By Arthur R. Hinks. xii+126 pp. (Cambridge University Press.) 5s. net.

"Junior Geography." Fourth Edition. By A. J. Herbertson and R. L. Thompson. With "Principles of Geography." By F. D. Herbertson. 288+120 pp. (Clarendon Press.) 3s.

The Elementary Geographies. By F. D. Herbertson. Vol. V., "North and Central America and the West Indies." 158 pp. 1s. 6d. Vol. VI., "The Three Southern Continents." 192 pp. 1s. 9d. (Clarendon Press.)

Oxford Wall Maps: "World: Physical Features without Names." "World: Major Natural Regions." Edited by A. J. Herbertson. (Clarendon Press.) Unmounted, 7s. net; mounted on cloth to fold, 8s. 6d. net; mounted on roller, varnished or unvarnished, 10s. 6d. net.

"Geography of Asia." By G. C. Fry. 136 pp. (Clive.) 8d.

Historical Geographies: I., "South Africa." By J. R. Fisher. 190 pp. (Henry Frowde and Hodder and Stoughton.) 1s. 6d.

"The New Preliminary Geography." By H. B. Wetherill. 188 pp. (Mills and Boon.) 1s. 6d.

"Business Geography." By J. Hamilton Birrell. 208 pp. (Ralph, Holland and Co.) 1s. 6d. net.

Mathematics.

"Analytical Geometry: a First Course." By C. O. Tuckey and W. A. Naylor. 368 pp. (Cambridge University Press.) 5s. net.

"Statics, including Hydrostatics and the Elements of the Theory of Elasticity." By Horace Lamb. 342 pp. (Cambridge University Press.) 10s. 6d. net.

"Direct Arithmetic and Practical Mathematics." Book IV. Pupils. 80 pp. (McDougall.) Paper covers, 4d.; cloth covers, 5d.

Science and Technology.

"The Origin and Evolution of Primitive Man." By Dr. Albert Churchward. 128 pp. (George Allen.) 5s. net.

"Petrol Engine Construction and Drawing." By W. E. Dommert. (Edward Arnold.) 3s. net.

"Steam Boilers and Boiler Accessories." By W. Inchley. (Edward Arnold.) 8s. 6d. net.

"Babes of the Wild." By Charles D. Roberts. 256 pp. (Cassell.) 6s.

"Spiderland." By R. A. Ellis. 108 pp. (Cassell.) 3s. 6d.

"Wild Flowers as They Grow." Vol. IV. By Mrs. Clarke Nuttall. 208 pp. (Cassell.) 5s. net.

"Rainbow Children." By Edith Howes. 250 pp. (Cassell.) 3s. 6d. net.

"A Treatise on General and Industrial Inorganic Chemistry." By Dr. Ettore Molinari. Translated by Ernest Feilmann. 704 pp. (Churchill.) 21s. net.

"Junior Sound and Light." By R. W. Stewart and John Satterly. 236 pp. (Clive.) 2s. 6d.

"Experimental Mechanics and Physics." By A. H. E. Norris. 176 pp. (Mills and Boon.) 1s. 6d.

Pedagogy.

"Education and National Life." (Blackie's Library of Pedagogics.) By Dr. Henry Dyer. 112 pp. (Blackie.) 1s. net.

Art.

"The Position of Landscape in Art." By "Cosmos." 224 pp. (George Allen.) 3s. 6d. net.

"Colour in the Home." By E. Duveen. 178 pp. (George Allen.) 42s. net.

Miscellaneous.

"King's Cutters and Smugglers: 1700-1855 A.D." By E. Keble Chatterton. 435 pp. (George Allen.) 7s. 6d. net.

"The Life of Sir David Baird." By Capt. W. H. Wilkin. 326 pp. (George Allen.) 12s. 6d. net.

Cambridge Bible for Schools and Colleges: "Ecclesiasticus." Revised Version. By Dr. W. O. E. Oesterley. civ+368 pp. (Cambridge University Press.) 6s. net.

"Success for Boys." By M. Apel. 76 pp. (Cassell.) 1s. net.

"Thackeray." By S. Dark. 70 pp. (Cassell.) 1s. net.

"Child's Bible." 256 pp. (Cassell.) 1s. net.

"Wireless Telegraphy and How to Make the Apparatus." 160 pp. (Cassell.) 1s. net.

"An Introduction to Psychology." By T. Loveday and J. A. Green. 272 pp. (Clarendon Press.) 3s. 6d. net.

"Religion, Morals, and Manners: a Course of Bible Teaching for School and Home." By J. Eaton Feasey. 332 pp. (Henry Frowde and Hodder and Stoughton.) 3s. 6d. net.

"Oxford Copybooks." I and II. By Graily Hewitt. 24 pp. (Henry Frowde and Hodder and Stoughton.) 3d. each.

"Little Plays for School and Home." Books I. and II. By Githa Sowerby. 32 pp. (Henry Frowde and Hodder and Stoughton.) 4d. each.

"Life of Columbus." (Supplementary Reader.) By Washington Irving. 256 pp. (Henry Frowde and Hodder and Stoughton.) 6d. net.

"Scottish Poetry for the Young." By W. A. Craigie. 48 pp. (Henry Frowde and Hodder and Stoughton.) 3d.

"Preparatory Reader." (Suggestive Phonic Infant Readers.) 63 pp. (McDougall.) Limp cloth, 6d.

"The British Subject: His Rights and Duties." By Thomas Bateson and W. J. Weston. 134 pp. (McDougall.) Limp cloth, 8d. net.

"The Acts of the Apostles." Edited by A. S. Walpole. 198 pp. (Oxford University Press.) 1s. 6d. net.

Oxford and Cambridge Schools Examination Board: "Papers Set in Examinations for Lower Certificate." 80 pp. (Oxford and Cambridge University Presses.) 6d.

Oxford and Cambridge Schools Examination Board: "Papers Set in the Examination for Higher Certificates, July, 1912." 256 pp. (Oxford and Cambridge University Presses.) 1s. net.

Music.

"The Growth of Music: a Study in Musical History for Schools." Part I., "From the Troubadours to Bach." By H. C. Colles. 160 pp. (Clarendon Press.) 4s. net.

"Little Ships in the Air." (Three-part Song.) Composed by Dr. A. J. Silver. (The Year Book Press.) 2½d.

"September." (Unison.) Composed by Dr. A. J. Silver. (The Year Book Press.) 1½d.

"Facts from Fairyland." (Two-part Song.) Composed by Dr. C. H. Lloyd. (The Year Book Press.) Staff notation, 3d.; Sol-fa, 1½d.

"I Will Call upon God." (Anthem.) Composed by Dr. Chas. Wood. (The Year Book Press.) 2d.

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.

Auto-suggestion in Science Teaching.

THE question has often been asked: Is it worth while spending so much time over science teaching? Is it justifiable in such a subject as chemistry, for instance—the science of the specialist—when apparently so little result is obtained?

The classical master may tell us that our failure lies in the lack of system. He is apt to make a virtue of necessity, for in the teaching of a language such as Latin or Greek the plan of campaign is to a large extent fixed.

Science teaching cannot in fairness be called un-systematic; there are many systems, but, unfortunately, they are not standardised. There is the system the inspector would have us follow: draw out your pupils, and by a carefully planned inductive method supply the facts experimentally and in their due order.

This is no doubt admirable—in the presence of inspectors—but the real spade-work of teaching does not begin here. In the first place, a boy does not care for a personally conducted tour through the realm of science, especially when he has no choice in the trip. Secondly, the steps in the induction which, to the teacher—and inspector—seem so admirably logical in sequence fail to make their appeal to the untrained mind. There are so many side-tracks down which the mind likes to wander. On the personally conducted tour the tourist is allowed three days perhaps to see Rome; the boy on his scientific tour is not so fortunate. The result is—after the first novelty of “experiments” has worn off—apathy in a fine educational subject.

It would appear, therefore, that the stimulus of interest in the subject must be kept up at all cost. Surely this can best be accomplished by the pupil himself without the interference of the teacher. I submit for criticism a method of auto-suggestion by the pupil. In this method the asking of questions is not only encouraged but it becomes an integral part of the teaching itself.

The theoretical chemistry or physics lesson of an hour's duration is carried out as follows. A plain statement of fact is made of the subject taught—whether it is combustion, or the focal length of a lens. The statement is always supported by experiments; the pupils are asked to believe nothing that they have not seen actually demonstrated. They are asked to take rough notes, and the instruction given is a mere statement; there is no attempt at drawing out whatever. This part of the lesson usually takes up twenty minutes of the time. A discussion is then opened, in which perhaps fifty questions are asked by the pupils themselves, on any difficulties they may have, or for any further information they may want. The questions are fully answered by the master. They are encouraged to suggest experiments to illustrate the various points. These, if possible, are carried out then, or else assigned to the boys for their practical lesson. If the class has missed some important point in its discussion, it is always possible to point it out—in fact, the general trend of the questions can be controlled by the master.

The last quarter of an hour is given to reading the subject under consideration in the text-book. It seems to me that in this way the text-book takes its proper place as the final appeal.

The preparation of the class consists in writing an account of the work done in school or in answer-

ing questions bearing on it. It may be objected that a class cannot guide its own course through difficulties and that the time will be wasted on side issues. I have not found this to be the case if the subject is illustrated by good experiments. For example, quite young boys will overcome the difficulties in connection with air pressure and the rise and fall of the barometer if they are allowed to discuss the experiments. It is surprising how they get to the heart of the matter at once. The general intelligence of the whole class improves, for to ask good questions about a subject requires a considerable amount of thought.

Further, the memory work attached to science is considerably lightened. The boy no longer remembers because he is told, but because he wishes to know. The questions he asks are a stimulus; they suggest to his subconscious mind the desirability of knowing; it is a true auto-suggestion. He is teaching himself—the best form of teaching. The general tendency of this method is to increase the interest and to maintain it throughout the school. The standard of the average boy is raised, for he by his own effort has taught himself some concentration—that most elusive of qualities—and he no longer looks upon his science as a “play-subject.”

P. L. J. SMITH.

Parallel Lines.

THE suggestion made by Mr. Merrick on p. 400 of last month's issue seems to have been anticipated nearly two centuries ago, either by Thomas Simpson or by Robert Simson (I forget which). Nevertheless, even the eminence of these authorities does not commend the method to me.

Modern investigation indicates that “ideal” space can be classified according to the number of parallels that can be drawn through the same point to the same straight line. But the only kind of space which our senses comprehend is that in which *one, and only one*, such parallel can always be drawn. Thus Playfair's axiom is not only justified, but seems necessary for the development of Euclidean geometry.

The Editors have kindly permitted me to foreshadow an article which will appear in THE SCHOOL WORLD for December next. In this essay I show the weakness both of Euclid's sequence and of the current modern methods. But by introducing a couple of definitions, and restating the theorems, the nature of parallels is exhibited clearly, logically, and concisely.

Also, by the mere expedient of drawing the parallels on one side only of the transversal, the proof by rotation can be so greatly simplified that I venture to claim it as a discovery which should remove all the present terrors of this subject.

R. WYKE BAYLISS.

Whitgift Grammar School, Croydon.

The School World.

A Monthly Magazine of Educational Work and Progress.

EDITORIAL AND PUBLISHING OFFICES,
ST. MARTIN'S STREET, LONDON, W.C.

Articles contributed to “The School World” are copyright and must not be reproduced without the permission of the Editors.

Contributions and General Correspondence should be sent to the Editors.

Business Letters and Advertisements should be addressed to the Publishers.

THE SCHOOL WORLD is published on the first of each month. The price of a single copy is 6d. Annual subscription, including postage, 7s. 6d.

The Editors will be glad to consider suitable articles, which, if not accepted, will be returned when the postage is prepaid.

All contributions must be accompanied by the name and address of the author, though not necessarily for publication.

The School World

A Monthly Magazine of Educational Work and Progress.

No. 168.

DECEMBER, 1912.

SIXPENCE.

SCHOLARSHIP REFORMS.

By J. L. PATON, M.A.

High-master, Manchester Grammar School.

WHETHER the Agenda Club has a special branch to look after education authorities and convert *agenda* into *acta*, I do not know. That it is badly needed is clear to all. Perhaps one of the most difficult problems that face them is the problem of scholarships, with which the Educational Section of the British Association was dealing some five years ago. The British Association did not succeed in formulating any general scheme of reform, and even Vice-Chancellor Sadler seems to have failed to sketch out any lines of reconstruction on a broad scale. But there are a few obvious agenda which could be put through almost immediately.

(1) How often have we heard the proud boast made at prize distributions that the scheme of the education authority makes provision for every legitimate aspiration of any boy or girl of parts under the ægis of the authority, and opens up an avenue to the highest positions whatever the aptitude of that boy or girl may be? We have ostensibly a veritable open career to talents. And yet, supposing the boy is looking forward, as a young citizen of the greatest colonising nation in the world, to settling on the land as an emigrant, or taking up farming in England, or becoming a seedsman, or if any girl looks forward to taking up horticulture or dairy-work, and if such boy or girl aims at acquiring a high qualification, possibly with the view of teaching, they find nothing in the scheme of the education authority which will help them to fulfil their mission.

There are many indications that such tastes for occupation on the land are on the increase. The most pleasing feature of the last census was the increase of more than half a million in rural areas. That is a proof in itself that the

tide has turned at last, that the movement "back to the land" has effectively begun. The development of garden cities and garden suburbs, the Small Holdings Act, the grant made by the Development Fund towards the assistance of agricultural education in the formation of farmers' institutes, all show evidence of a movement in the same direction. It is a healthy sign that public taste concurs with the signs of official policy. Besides, the Scout movement takes out the city boys by thousands every week into the country. It puts into their minds the love of God's out-of-doors. It makes them see that there are other pursuits far healthier and manlier than selling papers, running errands, acting as a little piecer or doffer in factory or printing works, or even sitting on a high stool and checking invoices. The growth of camping is teaching many a city lad to feel at home with nature and fend for himself, while at the same time the campaign against tuberculosis makes it more evident that many a life can be saved from helpless crippledom and premature death if it can be taken out of the congested conditions of city life. The growth of curriculum is in the same direction. Many even of our urban schools are developing a taste for gardening, and all of them are developing in their nature-study classes some nascent joy in growing natural things. All these tendencies are in the same direction. Manual training teaches a lad to be handy. The reproach has been levelled against our elementary schools that they tend towards the high stool and black coat, and produce clerks rather than craftsmen. Whatever measure of truth there may have been in it at one time, the charge cannot to-day be seriously maintained.

It will be a great help if the urban educational authorities can be induced to give to those boys and girls who are able to profit by them scholarships or exhibitions that will train them to apply practical scientific intelligence to the cultivation of the land. As

Charles Dickens said: "The allotment which the farmer needs to cultivate above all others is that which lies within the ring-fence of his own skull."

But the children that earn these scholarships must, it is clear, be sent for their training outside the area of the authority which makes the award. The urban child cannot be trained for the land in the urban district. This leads me to the second point.

(2) The time is now ripe for some system of interchange and reciprocity between educational authorities in the matter of scholarships, exhibitions, and free places. There is no head-teacher who is not continually being met with cases of a clever boy or girl whose education is cut short because the parents have to move to some other locality. Nearly always with the migration the child loses its scholarship. Now that secondary education is penetrating to a lower stratum of society, such cases are becoming more frequent. There are whole classes of the community which are condemned by their occupation to be migratory. There are the ministers of the Wesleyan Methodist Connexion and the Salvation Army officers; there are the servants of the General Post Office, and other branches of civil service; railwaymen, agents for insurance companies and large firms, commercial travellers, non-commissioned officers whose regiments are constantly being shifted from place to place; foremen of works, contractors, and engineers who move from one place to another when a big job is completed. These are just the classes which see the value of secondary education, and supply our secondary schools with some of their best recruits. Then there is the sad case where a scholarship is allotted during the lifetime of the father, and, on the father dying, the mother has to move in order to be near to relatives.

In some of these cases, it is true, the move of the father means a promotion; but that is not by any means always the case; and, even so, it seems a pity that the promotion of the father should penalise the progress of his child, for the expenses connected with removal are sufficient to counterbalance any rise in salary during the first year, at any rate.

It is not possible to give any statistics in the matter, but typical cases could be supplied by any head-teacher. Everything points to the need of some organised system of interchange between authorities—a sort of central clearing-house.

On a small scale this is being carried out. Here and there one finds there is a recognised system of mutual recognition between neighbouring county authorities and neighbouring boroughs. It is high time that this partial

reciprocity should be made universal within the borders of the United Kingdom. The County Council Association has passed resolutions declaring that it is desirable, but, for the most part, these resolutions remain as yet pious wishes, and the word "pious" in this connection means ineffective. Even Scotland, which shows us the way in most things, has not arrived yet at any general policy, though in Scotland, as in England, individual cases are considered, and much hardship is avoided in that way.

How the problem is to be solved is another question. In Scotland the responsibility for the continued payment of the bursary is, as a general rule, assumed by the committee of the district into which the parents have moved. In England, so far as my information goes, the committee which awards the scholarship, as a rule, continues it. To make this latter system general would give rise to great complexity in the case of free places, owing to the variation of the fees. But the practical solution of the problem lies not with the teachers, but with the high directive intelligences which sit in the seats of the mighty. It is for teachers to point out the need, and to keep on pressing until the reform is carried. There is an Association of County Councils, there is an Association of Municipalities; a joint committee of the two houses would be necessary to formulate a scheme which would be acceptable to both. When England is a kingdom at unity with itself in this matter, Scotland, Wales, and Ireland will not be long in coming in. The predominant partner might take the lead for once.

Some such arrangement seems to have been specially provided for by Section 12 of the Education Act of 1907. This section repeals the words of the Act of 1902, Section 23, which prevent an authority from awarding a scholarship to any student not ordinarily resident in the area of the Council. The actual words of the section are:

Education Act. 23.

1902. The power of a Council to supply, or aid the supply of education, other than elementary, shall include power to make provision for the purpose outside their area, in cases where they consider it expedient to do so in the interests of their area, and shall include power to provide or assist in providing scholarships for, and to pay, or assist in paying the fees of students *ordinarily resident in the area of the Council*¹ at schools or colleges or hostels within or without that area.

I find also that the London County Council, after conference with the representatives of the

¹ *Ordinarily to Council* repealed by Sec. 12 of Ed. Act, 1907. See also Sec. 11 of 1907 Act.

committees of Essex, Kent, Middlesex, Surrey, Croydon, and West Ham, arrived at an agreement by virtue of which a scholarship was to be continued by the awarding authority, notwithstanding the removal of the holder to a place within the area of one of the other authorities, provided he or she attended an approved school (Report of Proceedings of the L.C.C., 1910, p. 66). This is not the only arrangement which has been made between little groups of authorities. All that is needed now is to extend this arrangement so as to include all authorities. That is a consummation which ought to be brought about as speedily as possible.

A NEW TREATMENT OF PARALLELS AND TRANSVERSALS.

By R. WYKE BAYLISS, M.A.

Senior Mathematical Master, Whitgift Grammar School, Croydon.

IN spite of the efforts of geometers for at least 2,000 years, the question as to the perfectly logical treatment of parallel lines remains unanswered. Not only are we unable to find absolute mathematical proofs for theorems which our senses tell us must be true, but we are now reduced to the ignominy of having it mathematically demonstrated that these senses may perhaps betray us! Of course, we must not trouble the average school-boy with this mystery; but we should make it quite clear to all that our geometric proofs are ultimately based upon experiment, and that, in particular, the theory of parallels necessitates a special postulate.

It is generally agreed that Euclid's postulate is undesirable, and that Playfair's (in one form or another) is the best that can be devised. Opinion is not quite unanimous, because there are still a few advocates of the "walking round" method, which may be presented as follows:—

"If I walk round a triangle ABC, then I turn through the exterior angles at A, B, and C. But, since I am at last walking in the same direction as at first, the total turning must be four right angles. Hence the sum of the exterior angles of any triangle is four right angles."

There are those who describe this method as: "A conglomeration of false logic, loose thought, and grammatical obscurity, which it is almost criminal to place before our pupils." Without endorsing this dictum (for who has not at one time or another been fascinated by this facile sophism?), we may yet agree that the best way of using this "proof" is to expose

its futility. Take the case when A and B are points on the Equator 90° apart, and C is at the Pole. If we sail round this triangle, then the angles through which we turn at A, B, and C are each one right angle, so that the total turning is *three* right angles instead of *four*! Hence the reasoning must be false.

Some boys fail to distinguish between true reasoning and true conclusions. For instance it may be objected that in the former case the triangle was plane (or that the lines were straight), whilst in the latter it is spherical (or the lines are curved); and hence it may be claimed that the "reasoning" is true for a plane triangle. In reply to this we should ask where any such fact is mentioned or even implied in the reasoning: Can anyone point out where the words "plane" or "straight" should be inserted so as to add any force whatever to the reasoning?

Of course, we can make the reasoning valid (though still cumbrous and productive of loose ideas) by introducing a new postulate, such as: "The sum of three successive rotations about three different points in one plane equals the sum of three rotations of the same respective magnitudes about one point in the plane." But this postulate is in effect the theorem we want to prove expressed in other words! The whole argument, therefore, is merely a *petitio principii* of a peculiarly deceptive nature—an excellent illustration of "The Vicious Circle."

Those who wish to avoid the formal train of reasoning ought to face the matter boldly as a problem in experimental physics, the theorem being then proved by philosophical induction to the real edification of immature minds.

It would seem, therefore, that there are only two methods worth considering:—

- (1) The experimental inductive method;
- (2) The logical method based upon a parallel postulate.

The former has no doubt always been that adopted by the best instructors of the very young; but the latter is the only one worthy of being placed before a real mathematical student.

Where, then, is the possibility of devising a new logical treatment of this subject?

There can be nothing new either in the matter or in the logic: the facts to be proved and the processes of reason involved are invariable.

There can be very little novelty in the axioms, postulates, or primary definitions, although these fundamentals are largely interchangeable. Novelty here (since the introduction of hypothetical construction) consists in eliminating the unessential, our proper aim being to reduce the number of axioms or

postulates and depend so far as possible upon pure definitions.

It would thus appear that, for a logical treatment of the subject, there can be nothing really new except in the arrangement of the theorems and the nature of the definitions and postulates adopted for the enunciation and proof of each theorem; but, since most propositions contain two or more theorems, it is actually possible to have an entirely new set of propositions.

Assuming that we must retain Euclid's definition of parallels, and Playfair's postulate, I propose to adopt the following:—

(1) Two new propositions in the place of Euc. I. 27, 28, and 29: the two first dealing solely with the *relations between the angles* at the two vertices; the last showing the connection between the said relations and the *parallelism* of the lines.

(2) Two new definitions: one merely to avoid the circumlocution "two interior angles on the same side of the transversal"; the other necessitated by the second new proposition in order to express the complex results of the first in a single phrase.

(3) A variation, in the rotational method of proving the major parallel theorem, obtained by considering the figure upon *one side only* of the transversal (instead of both sides simultaneously) in relation to the reversed image of that figure.

These three items constitute the proposed innovation. Questions of detail, such as the phrasing of the propositions, the actual names of the things defined, and the syllogistic order of the proofs, will not affect the novelty of the treatment. But special reasons for these three suggestions may be expected.

(1) Euclid's division of I. 27 and I. 28 is purely arbitrary. I. 29, being the converse of the preceding, ought to be enunciated in the same proposition. The nine corollaries of the form, "If a transversal make one pair of corresponding angles equal, it will also make the other pairs equal," ought logically to precede the above theorems: their treatment as corollaries obscures the issue, making them seem to be dependent upon the parallel postulate.

(2) Whilst boys readily grasp the application of alternate and corresponding angles, they continually fail to observe pairs of supplementary angles. This weakness is due, I believe, merely to the want of a *word* or definition.

(3) Euclid's method of I. 27 is not merely out of date (because parallelism now precedes congruence), but also cumbrous (because it depends upon I. 16, I. 15, I. 13, and I. 4), unscientific (because I. 16 is redundant, that theorem being best treated as a corollary to I. 32), and even illogical. For I. 16, which is

made to appear the result of a clever train of reasoning, actually follows from I. 17, and this in its turn is a direct consequence of Euclid's own Axiom 12, since it is the very nature of an axiom that its converse is equally axiomatic. We have thus in Euclid's method a "Vicious Circle," perhaps more dangerous, because more subtle, than that of the "walking round" method.

Again, the modern method (that of turning the left-hand part of the figure round and superposing it upon the right-hand portion), although free from other objections, is still cumbrous. For, when a pair of straight lines APB, CQD are cut by a transversal at P and Q, we have not only (unless we unnecessarily draw the figure twice) to carry the "shape" of the figure APQC in mind whilst we rotate it, and then argue the possibility of this ghostly shape coinciding with the material figure DQPB, but we have also to regard P and Q as interchanged whilst still in their old places, and in almost the same breath to speak of AP as lying along DQ and yet forming part of the straight line APB!

Of course, this method, as compared with Euclid's, is like a Pegasus compared with a cart-horse. Nevertheless, we need scarcely wonder that not only students but many teachers also have taken fright at the apparition of this flying steed, however willing they may be to set riders thereon; for to some it must appear a veritable nightmare!

These reasons alone ought to justify the innovation. But, since the proposals may not be quite clear to everyone, I venture to suggest details of the scheme, as follows:—

FIRST NEW DEFINITION.—The two interior (or two exterior) angles on the same side of a transversal to a pair of straight lines are called *opposed angles*.

FIRST NEW PROPOSITION.—If a transversal to a pair of straight lines make a pair of alternate angles equal, or a pair of corresponding angles equal, or a pair of opposed angles supplementary, then every pair of alternate or corresponding angles are equal and every pair of opposed angles are supplementary.

[This may be established by proving any one of the nine cases and remarking that every other case can be treated in a like manner. No assumption is required except the theorem, "If a straight line meet another straight line, the adjacent angles are supplementary."]

It is not in accordance with the principles of science to define any geometrical figure until we have proved the possibility of its existence. But, after establishing the above theorem, the following definition is certainly justified:—

SECOND NEW DEFINITION.—A transversal is said to cut a pair of straight lines *at the same*

angles when it makes the opposed angles supplementary and the corresponding and alternate angles equal.

We are now able to condense the wordiness of Euc. I. 27, 28, and 29 into the following simple pair of converse theorems.

SECOND NEW PROPOSITION.—When a transversal meets a pair of straight lines: (i) if they be cut at the same angles, then they are parallel; (ii) conversely, if they be parallel, then they are cut at the same angles.

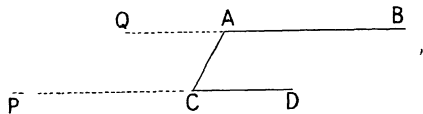
Theorem (i). PARTICULAR ENUNCIATION.

Let AB and CD be a pair of straight lines cut at the same angles by a transversal AC; i.e., so that the opposed angles BAC and ACD are supplementary.

Then AB and CD shall be parallel.

CONSTRUCTION FOR PROOF.

Let PCAQ be the position which the figure BACD would take if it were rotated in its own



plane through two right angles about the middle point of AC.

PROOF.

Then the angle PCA = the angle BAC (by construction).
 = the supplement of the angle ACD (given).

Thus PCD must be one straight line.

Similarly, QAB must be one straight line.

Now, since the figures PCAQ and BACD are identical, if QB and PD meet on either side of AC they must also meet on the other side.

That is, the lines AB, CD, if produced continuously both ways, must either meet in two points or never.

But they cannot meet in two points, since they are straight.

Hence they can never meet, however far produced in either direction.

Thus AB and CD are parallel.

Converse: Theorem (ii). PARTICULAR ENUNCIATION.

Let AB and CD be two parallel lines.

Then they shall be cut at the same angles by any transversal AC.

CONSTRUCTION FOR PROOF.

Let AX be drawn so that AX and CD are cut at the same angles by the transversal AC.

PROOF.

Then, by the theorem just proved, AX is parallel to CD.

But only one parallel to the same line CD can be drawn through the same point A.

Hence AB must coincide with AX.

Thus AB and CD are cut at the same angles by AC.

[N.B.—With the abbreviations and omissions of certain writers the above might be compressed into half the space.]

What are the special advantages of this scheme?

Brevity.—The whole proposition with its converse (including the general enunciation) can be clearly and grammatically stated in fewer than 300 words. The corresponding propositions of Euclid require altogether about 600 words (more or less, according to the conscientiousness of the writer). Again, the usual modern proofs are certainly not shorter than Euclid's. Hence, there is a saving of more than half the work.

Logical Order.—There is no good reason for the sequence I. 27, 28, 29. The boy who proves I. 27 by assuming I. 28 may fairly claim to be adopting a proof "which appears to form a part of a systematic treatment." Again, assuming Euclid's parallel postulate, we can prove I. 29 first and thence deduce I. 27 and I. 28; thus rendering Euclid's elaborate sequence perfectly meaningless! But the method here indicated produces a natural sequence (through all his books) which it is impossible to alter so long as we retain the same definitions and propositions. In place of the arbitrary sequence of Euc. I. 4, 13, 15, 16, 27, 28 and 29, we have a natural and inevitable sequence of four theorems.

Basic Principles.—The new method throws the fundamental principles into the clearest relief, making it obvious which assumptions lie at the base of each theorem. Thus the first new proposition is seen to depend solely upon the fact that one straight line meeting another makes the adjacent angles supplementary; which fact in its turn rests upon the basic rocks of "straightness" and "rotation." The major theorem of the second new proposition is seen to depend, not only upon the above, but also upon the basic rock of "superposition" (or transference to another place without alteration of form). The converse theorem is also clearly shown to depend not only upon each of the above three rocks (a fact which Euclid disguises), but also upon that rather treacherous ground "the parallel postulate." Hence the fundamental ideas are more firmly grasped.

Want of space forbids me to enumerate all the advantages of this new method, which, I

believe, is calculated to remove nearly all the present disagreements concerning the formal teaching of elementary geometry. But I should be most grateful for any suggestions or criticisms; and, if I have erred in supposing this treatment of parallels and transversals to be wholly new, I should be extremely obliged to anyone who can direct me to an earlier source.

THE AIMS OF THE DIRECT METHOD OF TEACHING LATIN.¹

By C. L. MAINWARING, B.A.

Whitgift Grammar School, Croydon.

THE value of teaching Latin on the direct method can only be judged by considering how far it exemplifies the wider principles of education. These principles must first be decided; and before advocating any reform of method it is desirable to realise the faults that make reform necessary, and to embody in the reform the principles designed to remedy them. These faults are discernible in the results of the existing methods.

We find a boy of average ability starting his school life full of interest in everything that occurs, of enthusiasm, of desire to take part in all kinds of activity, to express himself, to develop. What better material in the world can an educator desire to have? The boy is then subjected to a process lasting from six to ten years, and what do we see? In the majority of cases an individual bereft of his enthusiasm and his interest, void of both the desire and the ability of self-expression, nay, with a superb contempt for these qualities and for most of the things worth having in life. To what other cause can we attribute this result than to the six or ten years' process to which he has been subjected? There have been notable exceptions; there have been those who were brilliant enough to rise above their circumstances, to be great in spite of their education; but I quote the example of the average boy, in whose case the result has been appalling. It has been even, I might say, immoral so to have treated the pupils entrusted to our charge.

I do not necessarily maintain that the system of education that has produced these results is entirely bad, nor that it has always been bad. It is doubtless the outcome of the brains of great men, who formed it to exemplify great ideals, and doubtless at some time in the past it achieved its purpose; but its fault lies in the fact that it has become stereotyped and con-

ventional; that its ideals have been lost sight of; that the means for gaining them have been made into a fetish. And, worst of all, the well-being of the boy has been sacrificed at the altar of educative method, worshipped for its own sake instead of for the sake of its results.

Mr. Holmes, in his work "What Is and What Might Be," attributes these evils to the belief in the doctrine of "original sin," the belief that whatever a boy wanted to do was *ipso facto* wicked, and that it was our duty as the boy's instructor to check him from doing it and to force him to do something else. What that "something else" was did not matter in the slightest, so long as it was something he did not like doing and so long as he understood that the reason for his doing it was that he did not like it. Thus he resigned himself to the habit of "mechanical obedience," as being the line of least resistance. It is only too true that many who became great men in after-life were those who had kicked against the pricks.

Now this principle of assuming that a boy was full of evil designs and that, if he were allowed to develop, he would become full of worse designs, permeated the whole of his school life, and spoilt for him every subject that he was taught; and his Latin seems to have suffered more than any subject; seems, in fact, to have attracted to itself in their most acute forms the evils that existed generally. A short time ago a small boy, who had been learning Latin for about two years on the old method, confided to me an example of his great distress. In the course of a conversation, which turned upon his school work, he said: "Do you know, I am rather ashamed of myself? I don't know what Latin is: will you tell me? Was he a man, like Euclid, or a woman, like Algebra?"

It had actually seemed advisable to conceal from him the truth as to what he was studying for fear that he should become interested and enjoy the pursuit of it. The method employed with him had been the one with which we are all familiar. His subject had been treated as so dead that he did not even recognise that it was a language. It had been presented to him as a collection of words and forms and rules, in the existence and variations of which he could conceive no possible reason nor meaning, and in which he had no interest whatever. A Chinese puzzle or a jig-saw would have had as much meaning and considerably more interest. "Well," said the master, "he doesn't understand it yet, he's too young; he doesn't know what's good for him; but in a few years he will be equipped with the means for reading Latin, for studying the style and the thought of the great Roman authors themselves." Facts show that the master was in most cases

¹ From a paper read at the Summer School of Latin held at Bangor in September, 1912.

wrong. The mere acquisition of the whole of Latin grammar and syntax did not equip the generality of boys with the means of studying the Roman authors. When they came to face them they had to learn that Latin was, after all, a language. But this was not the worst. When the boy had this equipment, he either left school before he tackled a Roman author, or else his interest in Latin had been destroyed or so much dulled by his previous acquaintance with the subject that he wished he had left school. No wonder people cried out, "Why teach Latin?"

However, whether the aim of the old Latin teacher was to crush the soul out of the boy, or to force into him the ability to read the Roman authors—I suspect that, as a matter of fact, he had become oblivious of any real aim—but supposing for a moment that he had an aim, and that it was the latter and not the former of the two I have quoted; and supposing further that he achieved his aim, there remains still to be answered the ethical question: "Did the end justify the means? Was the price that the average boy paid for his ability to read the Roman authors—always supposing that he acquired this ability—was it justifiable, in the face of the other moral and intellectual results with which we are so familiar?" The answer to that question is to me of the utmost importance—the crux of the whole educational problem and of the Latin problem in particular, because it involves the answer to the question: "What is the aim of education?" And I believe that the answer to this is: "To produce a good man"; and that if we sacrifice this ideal in producing a Latin scholar, we are failing in our duty.

Let us therefore expand this answer before we consider what means we are to adopt in order to follow it; and if we find that Latin as taught in the past failed to fulfil this end, is it to disappear from the curriculum of our schools altogether, or can it be taught in such a way as to deserve an assured position as a means to fulfilling it?

Perhaps the first duty of a man is to be able to support himself in this world without becoming a burden on the rates. It has been said that the first duty of a man in this world is to get out of it. But though our personal experience of others may lead us to think that there is a good deal of truth in this assertion, we are not, after all, members of a suicide club, and I will dismiss it as impracticable on social grounds. We conclude, then, that in our ideal educational scheme we must not, at any rate, deprive a man of the ability to earn, say, £160 per annum; nay, we must take the utmost care that he can and will, within a short time after leaving school, make himself

capable of facing the financial troubles of our commercial civilisation.

But granted this acquisition, I fear I have laid myself under the obligation of defining more fully what I mean by this somewhat vague epithet: a "good" man. Well, this is not a paper on moral philosophy, and for that reason I am driven to assume a certain agreement on this point. I assume, for instance, that the good man in question possesses all the ordinary virtues of truthfulness, honesty, and so forth, but there is a further attribute which I think he ought to have and it is the peculiar power and the peculiar duty of education to cultivate in him. It is not merely the positive possession of the ordinary virtues, not merely the actual fact of acquired knowledge, not merely the trained ability to deal with any one specialised subject; it is rather a high mental and moral *attitude* towards life in general. It is not only a knowledge of what is best in life; it is an interest in what is best in life as a reality. It is not simply a knowledge of the virtues; it is a potentiality for actually pursuing them. In short, it is that freedom of mind from the conventionality of maxims and details that enables a man to appreciate what is worth having in life, and to realise it in his own life; that generates the desire and gives the ability to develop himself in any direction that his destiny may require. He will not feel the lack of specialised knowledge, because he will be equipped with the necessary means—the interest and the ability—speedily to acquire it, not in one direction alone, but in *any* direction that may be necessary, because he comprehends the great issues of life and sees purpose in what he does. In short, it is the enthusiasm to see the best in life, to seek it for its own sake, and thus to develop his own capabilities to their fullest extent, to realise himself, in the pursuit of the highest good.

Aristotle said that the end of education was to feel pleasure and pain on the right occasion—that is to say, in the right things, at the right time, in the right people, and in the right circumstances; and I think there is little difference between this definition and the one I have outlined. It implies a general attitude towards experience, not a specialised ability or knowledge. Another definition has been given which says that our aim should be to enable a man to spend his leisure profitably, and it is probably true that a man's leisure, his hobbies and incidental interests, are as good a criterion of the man as anything else, and that he can and will spend his leisure profitably if his general attitude of mind has been educated to an interest in the great issues of life.

Perhaps the word "culture" may help to give some impression of what is meant by the two definitions I have just quoted, and by the description I have just given of the end of education; but it is a vague quality that I describe, and I fear I have described it vaguely. Yet it is a quality which I believe it to be the highest aim, the peculiar aim, of education to produce, and I believe that this ideal, if kept in view, may make education less confined, less conventional, less stereotyped, and may free it from the dogmatism of the past and the evil results that that dogmatism produced. Our attention will be centred upon the ultimate well-being of the pupil, the development of his natural ability in the direction of good, to its fullest extent, rather than upon the treatment of him as a machine designed for the reception of any meaningless activities or bloodless facts that are brought before him for the sake of compelling him to acquire them.

What means can best achieve this end? The greatest factor is undoubtedly the personality of the teacher, but, granted this, there still remains the question of the subject and the method of teaching, which is really only one question, because a subject taught on one method is often of entirely different educational value from the same subject taught on another method.

The best means to achieve the end is to stimulate in the pupil an interest in the thoughts and actions of great men, and to train in him the ability to appreciate them and the desire to follow them, that he may thus develop and realise himself in what is best in life. The subjects which, if properly taught, conduce to this are philosophy, which for various reasons is not taught in schools, history, and literature. After these come the study of foreign languages, which, besides opening new vistas of literature, have the additional advantage of encouraging the ready arrangement and expression of thought. But it is only when the language is taught directly as a means for the conveyance of thought that this additional advantage is really gained.

I believe that the occupation of learning an inflected language orally will have a moral result of the highest value. What mental gymnastic the student performs is not a purposeless torment invented to drive him along the path of mechanical obedience; it is training in him not an abstract, but a concrete reason, which he can apply to any problem that may arise, for it has a real and living interest for him. He is thinking and saying the things that are real to him; he is rather on the path of self-realisation, of practising and developing what is best in him in relation to acts and thoughts that have a concrete

meaning, and I submit that these qualities are the highest he can develop for making the best of his life after he leaves school.

Only I would impress upon you that we are not concerned only with the details of our teaching. It behoves us as reformers to defend our details, our methods of teaching and the place of Latin in the curriculum of our schools on the ground of wide principles and ultimate ideals, and that, only if we do so, Latin will no more be condemned before the world as a toy to amuse a bored pedagogue, an instrument of torture to crush the soul out of the boy; but it will stand as part of a great movement, indicative of a revival, a renaissance in modern education. And thus may the humanistic spirit, as of old, come into its own and engender perhaps a higher view of life.

THE CORRELATION OF THE TEACHING OF MATHEMATICS AND GEOGRAPHY.¹

By B. C. WALLIS, B.Sc., F.R.G.S.

THE teacher of mathematics has a double aim. First, he attempts to teach a certain amount of theoretical knowledge; and, secondly, he tries to make his pupils facile in the use of mathematical methods for the solution of such problems as deal with the results of measurement. The boy who learns mathematics obtains a store of ideas and tools, and at the same time an outlook on life which removes from his mind any timidity in the presence of numbers.

The modern teaching of geography owes much to the outlook upon life which mathematical knowledge and training induce, and at the same time has common ground with the modern teaching of mathematics, since geography depends upon mathematical concepts, and geographical investigation requires the use of mathematical tools. It may be wise, therefore, to make the following suggestions under the separate heads of principles and practice.

Let us consider principles first, and begin with the principles embodied in the notion of similar figures and solids. Some notion of the relation between things of the same shape, but not of the same size, is fundamental—if not axiomatic—to the modern child; and I lay emphasis on the modernity of the child in view of the fact that this is the age of machines. In his nursery days the child is provided with toys which are models of the real things of adult life. These are the doll, the boy's first wheelbarrow, the girl's cradle for

¹ A paper read at the meeting of the London branch of the Mathematical Association, November 2nd, 1912.

her doll, and so on. These are, later, followed by mechanical toys and bricks for building. Such a familiarity with models continues throughout the early school years in the kindergarten, where the child proceeds to make models for himself. During this period the child first attempts to represent solid things by drawings or pictures on a flat surface.

Current mathematical teaching fails to make as much use as is possible of these early experiences, and reaches the principles of similar figures and similar solids too late. If this be true, mathematics loses much help which the teacher of geography might give, for the latter can supplement the mathematics by constant practice in the geographical work. The use of a globe as a model of the earth, of a map as a representation in the flat of the undulating surface of a solid, of a model of a small area with an exaggeration of the heights in comparison with the distances, all deal with similarity but not congruency. The child learns his geography better if he has some mathematical notions; and he appreciates his mathematics better if it has some relation to actual things.

Implicitly or explicitly the geography teacher must utilise the notion of similar figures, and it usually happens that he has to fall back upon the pre-school experience of the child and cannot call the mathematical work to his aid. An instance of the delay which occurs in this connection arose recently: a boy who had learnt the theorem of Pythagoras nearly two years ago came to me for verification of a notion which had just occurred to him—equilateral triangles on the sides of a right-angled triangle are together equal in area to the area of the equilateral triangle upon the hypotenuse.

At first the map is regarded by the child as a convenient diagram which represents certain things in a more or less pictorial way; and it is one of the main functions of the teacher of geography to improve upon this crude idea until the child realises the true relation which exists between the map and the area which it represents. Such work as this involves measurements and a knowledge of the relationship between lines and areas in similar figures. At once we begin with work on the scale of the map; and the teacher of geography has to decide upon one of two courses: either to teach some mathematics, or to teach a few empirical rules. Usually he leaves the mathematical aspects of his work severely alone. He teaches empirically, or by authority, and fails to get the best work done from the point of view of both mathematics and geography. The excuse is the lack of time. Geography gets, roughly,

one-third of the time devoted to mathematics; and the teacher of geography has no time to teach mathematics. The point is that mathematical notions regarding similarity should be reached concurrently, both in geography and in mathematics.

At first the map is regarded as a finished product, and the inquiry is directed not into its origin, but into its interpretation. Sooner or later the child learns something of the methods by which maps are constructed—both methods in use in surveying and methods in use in map-construction. At an early stage in this progress he tackles the term triangulation and all that this term implies. He performs simple plane-table exercises, and uses a series of triangles to make a map or plan. He is satisfied with the result which he obtains, or, at most, makes one or two empirical checks by means of actual measurement. He is not anxious to discover why he should expect a good result; he is satisfied with the result of his actual experience. He does not care to inquire, in the case of failure, whether it is the method which fails or the worker who is at fault. But the teacher of geography should not encourage this state of apathy. Provided his mathematical colleague has reached the stage when he has discussed the conditions of the congruency of triangles, the geography teacher should correlate his work with the mathematics and make it clear that the method is theoretically—*i.e.*, mathematically—perfect; but still it may be practically—*i.e.*, geographically—defective. If the mathematics has not yet reached this stage, he may feel inclined to squeeze into his course some theoretical discussion.

Development proceeds with reference to the measurement of heights, and, later, with reference to theodolite surveying. The teacher of geography requires to use the mathematical notions of the simple trigonometrical ratios. If they are not known, he should teach them. If he does not teach them, he fails to take his pupils beyond the stage of empiricism, for they must always determine their heights by drawing to scale, and cannot calculate their results by trigonometrical means. In a similar way he must omit the discussion of the theoretical aspects of theodolite surveying, and its greater accuracy in connection with triangulation. He must also present his pupils with an authoritative list of the lengths in miles of a degree of longitude measured along the several parallels of latitude.

Consequently, the teacher of mathematics should take care to introduce some notions of the theory of the trigonometrical ratios at such an early stage as will be useful to the teacher of geography. In my experience this should

be during the first year's work in geometry. The earlier suggestion that similar figures should be treated first will make the introduction of the trigonometrical ratios possible. Geography would gain by the change from empiricism and authority to knowledge, and the mathematics would gain by the practical applications of its principles to other work.

It is now time to consider mathematics as a tool, and mathematical instruction as teaching in computation of measured quantities. Most of the arithmetical work in geography occurs in reference to averages and percentages. The geographer uses arithmetical means as averages, and provides so much practice in their calculation that the teacher of mathematics may well leave to him anything beyond the theoretical considerations, just as the teacher of physics leaves to the geographer the measurement of irregular areas and irregular lines. Percentages are more important; and since percentages are but decimal fractions read with the hundredths place as a unit, it follows that geographical teaching provides an argument for extra emphasis in early arithmetic of decimals to the comparative exclusion of vulgar fractions.

But the child may look to his teacher of mathematics for something more in this connection than theory; he may ask for aids to facility in calculation. At first, the teacher of mathematics should teach him how to use a piece of squared paper for the calculations of percentages by graphical methods. He should be provided with a tool, which he can use quickly and accurately. Later, the child should receive an early introduction to the use of tables of four-figure logarithms; and, later still, he should be introduced to the slide-rule.

The attitude of the teacher of geography in this connection is this: he can provide the means for sufficient practice in the use of these three tools at different stages in the life of the pupil, provided the teacher of mathematics will teach the child how to use the tools.

We may now consider for a moment two other matters, which may or may not appeal to teachers with equal force. First, there is the question of degree of accuracy. In physical science the child makes measurements of small quantities; he is interested in comparatively minute changes. Geographical work, on the other hand, takes him to the other end of the scale; he deals with variations in large amounts; he deals in millions of bushels or in thousands of tons. In both cases he deals with measured quantities which may contain errors over which he has no control, and regarding which he has no means of determining their precise or probable value. He knows merely that his quantities have an

accuracy of so many figures. Consequently, he should be familiar with the proposition that when two quantities, each of which is accurate to N significant figures, are multiplied and divided, the result obtained is not necessarily accurate to more than $(N-1)$ significant figures. The validity of this proposition should be discussed by the teacher of mathematics.

Secondly, there is the question of the teaching of some of the simpler methods of statistical investigations. Geographical work supplies sufficient subject-matter, provided the teaching of mathematics supplies the theoretical knowledge, and the tools, *i.e.* the formulæ, &c., for this work. The adult finds a continuous appeal made to his statistical knowledge; it may, therefore, be held that it is the joint duty of the mathematician and the geographer to provide him with such knowledge and such experience that he can distinguish the true from the false. The gullibility of the modern man in the face of numerical statements is a reproach to both the geographer and the mathematician.

You may, perhaps, feel that I exaggerate the importance of geography; but the position is this: After the teaching of the mother-tongue, and of so much mathematics as is understood by the term simple arithmetic, no subject in the school curriculum has a greater claim to consideration than geography, the study of the life and work of man.

PERSONAL PARAGRAPHS.

DR. McCLURE, upon whose recent appointment to the Registration Council I commented, has now completed his twenty-first year as headmaster of Mill Hill School. The occasion has been marked by various presentations made to him and to Mrs. McClure, and reference was also made to the fact at the thirty-fourth annual dinner of the Old Millhillians' Club, held on October 25th, when Sir Robert Morant, in proposing the toast of the school, directed attention to the fact that in twenty-one years Dr. McClure had brought Mill Hill into the first rank of the public schools of England.

* * *

WHEN Dr. McClure succeeded to the headmastership, there were only 61 boys in the school; now there are more than 250. Since 1891 two new houses have sprung up, and this term a junior house has been opened; a beautiful new chapel, a library, the Murray scriptorium, erected in honour of Sir James Augustus Murray, who commenced his work upon the Oxford Dictionary while a master at

Mill Hill, the new block of class-rooms, the new music school, are the outward and visible signs of the advance made by the school during Dr. McClure's headmastership. He summed up his aims some years ago thus:—"In the future it must be our aim that Mill Hill continue not as an undenominational, but rather as an interdenominational school, second to none in equipment, character, and teaching, great not in the magnitude of endowment nor in the number gathered within her walls, but great in the work she is called upon to do, and in the principles of which she is the living embodiment."

* * *

MR. E. D. A. MORSHEAD, for many years a master at Winchester, died on October 24th. His father was the Rev. John Morshead, vicar of Salcombe Regis, and his mother a cousin of Charlotte Yonge. He distinguished himself both at Winchester and at Oxford; in 1874 he obtained a Fellowship at New College; from 1872 to 1904 he devoted the whole of his energies to the services of Winchester, being form-master of the lower sixth and tutor to the upper sixth. To the outside world he was chiefly known by his translations of Æschylus and Sophocles; to his acquaintances he was chiefly known for the quickness of his intellect and the vigour of his utterance; to his friends for his kind-heartedness and unselfishness; and to the whole school for the quickening power of his mind, for his painstaking and conscientious work, and for his laboriously methodical ways and inspiring teaching.

* * *

MISS A. S. PAUL, Fellow of University College, London, now headmistress of Notting Hill High School, has been appointed headmistress of Clapham High School, in succession to Mrs. Woodhouse, who retires at the end of this term. Miss Paul was formerly a mistress at Bedford High School, and also at the school of which she is about to become headmistress.

* * *

COMPARATIVELY few people remember that Mr. Robert Barr, the novelist, began his literary career as a schoolmaster. He was not, as many suppose, an American who had come to England, but a Scotsman who had spent the impressionable years of his life in America. He was born in Glasgow in 1850, and was taken to Canada at the age of four, and, later, to the United States. He first earned his living at some manual trade, but soon became headmaster of the public school at Windsor, in Canada, an office he held until 1876, when he drifted into journalism, and went on to the editorial staff of *The Detroit Free Press*. Here

he showed great enterprise, and on one occasion is said to have robbed the Canadian mailbags in search of copy for the formal delivery of which he could not wait. His first book, "In the Steamer Chair," was published in 1892. He was a genial companion and a most entertaining raconteur.

* * *

ON the completion of twenty years' service as headmaster of Abingdon School, the Rev. Thomas Layng intends to retire. He obtained an entrance scholarship to Oundle from St. John's School, Leatherhead, and a leaving scholarship from Oundle to Cambridge. Mr. Layng was a master at Shrewsbury, and afterwards for nine years at Cranleigh, before becoming headmaster of Abingdon in 1893.

* * *

AMONG the recipients of honorary degrees at Bristol University were many well-known educationists. The Bishop of Hereford received the degree of Doctor of Laws. Appleby Grammar School claims him as an old boy. He was a master at Rugby, then first headmaster of Clifton College, where he remained for sixteen years. Dr. Percival then became president of Trinity College, Oxford, and after nine years went to Rugby as headmaster in 1887. He became Bishop of Hereford in 1895, and has continued to take a keen interest in all educational matters. Afterwards he was one of the promoters of Bristol University College, and is now one of the pro-chancellors of the University, and an *ex officio* member of its council.

* * *

The present headmaster of Clifton received the degree of Doctor of Letters. Mr. King was an old Clifton boy, and proceeded from the college to Lincoln College, Oxford, of which he became a Fellow in 1882. He returned to Clifton as a master, but only for a short time, going first to St. Paul's, and afterwards back to Lincoln as a tutor. From 1891 to 1903 Mr. King was high-master of Manchester Grammar School, and then headmaster of Bedford Grammar School, whence he returned to Clifton as headmaster. Mr. King is now president of the Headmasters' Association and chairman of the Federal Council.

* * *

THE degree of Doctor of Letters was conferred also on Mr. Cyril Norwood, who was appointed headmaster of Bristol Grammar School in 1906. Mr. Norwood was educated at Merchant Taylors' School, and was afterwards classical scholar at St. John's College, Oxford; he took a first in Mods. and a first in Greats. For two years he was in the Admiralty, having taken first place in the examination for Class I.

clerkships. In 1900 he went to Leeds Grammar School as form-master of the classical sixth, a position he held until he went to Bristol as headmaster. During those years he was an active member of the Assistant-masters' Association, organising its work in the West Riding, and gathering together the mass of information that was afterwards published in his book written in conjunction with Mr. Hope.

* * *

THE Doctorate of Laws was conferred also on Mr. C. H. B. Elliott, one of H.M. Inspectors of Schools in the district, and on Miss Marian Fry Pease, who, since the opening of the Day Training College for Women at the University College, held until recently the position of mistress of method.

* * *

AMONG the Masters of Arts were Mr. Harry Coward, master of one of the council's schools and a co-opted member of the Bristol Education Committee; Mr. J. T. Francombe, for many years headmaster of the Redcliffe Schools; Miss E. M. Hughes, headmistress of the Colston's Girls' High School; and Miss Eleanor Shekleton, headmistress of the Redland Girls' High School. ONLOOKER.

SCIENCE IN GIRLS' SCHOOLS.

MUCH discussion has taken place as to what should be the character, scope, and aims of the course of work in science taken in secondary schools by girls who are not intended for professional careers in later life. Recently a demand has arisen for instruction in what has been variously called "the science of home life," "domestic science," "housecraft," "housewifery," and so on; and it is claimed that it is possible by such courses of work to inculcate the methods of science and at the same time to impart information likely to be invaluable in the management of a household.

Among the opinions held by teachers and others concerned with the education of girls are:—

(1) The prime object of a school scheme of science study should be educational, and its object the acquirement of a scientific attitude of mind rather than a smattering of ill-digested and incompletely-understood information regarding the complicated processes of the kitchen, laundry, and other household departments.

(2) Domestic operations should be taught as "home arts," and it should be admitted frankly that their scientific treatment is more suitable for post-graduate study, being impossible

without much preliminary study of chemistry, physics, and physiology.

(3) The usual course in science is too academic and strikes girls as unreal, and it could and should be superseded by an experimental introduction to the scientific method in which all the subjects of practical study should be closely related to everyday occurrences in the home and illustrated by them.

(4) Botany studied in an observational and practical manner provides the best means of training girls in scientific habits of thought and work, and should not be displaced.

Believing that a useful purpose would be served by the discussion of these and related questions, we invited expressions of opinion upon them from a number of schoolmistresses and others who take an active interest in the science schemes of girls' schools. We are glad to be able to place the following statements before our readers, because they represent the results of wide experience in many types of secondary schools for girls. We invite further contributions to the symposium from science-mistresses who have experimented in this direction.

MISS L. M. FAITHFULL, M.A.

Principal, The Ladies' College, Cheltenham.

SINCE my appointment to the college five years ago I have taken a great interest in the arrangement of the ordinary science work and in the special organisation of the domestic or home science.

I am of opinion that science classes, *i.e.* physics and chemistry, should be taken in a school from the age of twelve and thirteen, independently of the application of science to domestic work, and that a good foundation of scientific method should be laid first of all, so that this work may be equally useful whether the girl at a later state of her career elects to follow a university course and to take the degree of Bachelor of Science, or to enter the home science department and learn housewifery and the chemistry of cookery.

I think that the teacher of elementary science will be assisted in the treatment of her subject by the selection of illustrations from familiar processes, domestic or otherwise; at the same time, the use of unfamiliar material should not be avoided where it forms an important link in the way of scientific knowledge, or where the action concerned is simpler or more striking. It must be remembered that unless the scientific basis is sound, any illustrations will be inaccurately applied, and therefore worse than useless.

I do not approve of girls beginning home science as a special study until after the age of sixteen, and I believe that by this time they should have been able to have at least one year of physics and one of chemistry. It is assumed, of course, that such teaching takes place in a laboratory, and from the first is experimental and practical.

I do not think that home science should be taught without kitchen laboratory work, and it is essential that the teacher should have had a very good general

training in science. I have pleasure in enclosing a syllabus¹ which will show the lines in which this work is associated with the teaching of domestic arts.

I believe it is quite possible for girls who have had the elementary science teaching of which I speak to appreciate such a course of kitchen laboratory work.

MISS IDA FREUND.

Lecturer in Chemistry, Newnham College, Cambridge.

CAREFUL study of the provisions made and the results obtained in the study of different branches of knowledge in girls' and boys' schools respectively shows that in natural science there is a difference, the existence and the fundamental nature of which are officially recognised:—

"In practically all boys' schools the subjects taken are chemistry and physics, whilst in the majority of girls' schools botany is the main science subject. . . . In too many schools botany is regarded somewhat in the light of an accomplishment, making no very serious demands on the pupils' intelligence." (Board of Education Report, 1909-10.)

Now, whatever may be their educational opportunities, botany and nature study, the specific features of which are observation, classification, and description, culminating in an intelligent life-interest in natural history, leave almost untouched the special province of physical science, namely, "the investigation of laws in the material world and the deduction of results not directly observed."

But it has been urged that girls do not take well to the study of physical science owing to its very exacting demand for clear thinking and cogent reasoning, and that therefore the course for them should be on fundamentally different lines from that arranged for boys. Surely if such a sex disqualification does exist it becomes all the more important for girls' education to be so planned as to develop and strengthen the stunted faculty. There are no two brands of logic, one superior, for use by the male, and one inferior for the female. The recognition of the inviolable connection in nature between cause and effect, the method of assigning an effect to its proper cause, the intellectual honesty required to differentiate between what may be taken as proved and what belongs to the realm of "they say": all this surely is essential alike for boys and girls, for the housekeeper no less than for the engineer. And this attitude towards facts, which is summarised in the term "scientific method," is most thoroughly and most quickly acquired through the study of physics, which "has the advantage over all other school subjects that it applies the most exact possible method of acquiring knowledge to the simplest possible subject-matter."

To me it seems almost self-evident that the realisation of the scientific method by young people is absolutely dependent on the *simplicity* of the phenomena dealt with; from which it follows that physics is preferable to chemistry, and so-called domestic science entirely unsuitable. On the plea that the very little of physical science hitherto taught is "too academic

and strikes girls as unreal," the substitution of the subject domestic science has been advocated, and in many cases already accomplished. The general public, educational authorities, and, alas! not a few headmistresses have been dazzled by promises of a combination between the educational and the utilitarian, of housecraft and scientific method learnt at one and the same time, of the advent of a new era in which every woman will know all that is known (and more) about food values and the chemistry of cleaning. On the other hand, a large number of experienced women science-teachers, among whom not a few can claim first-hand experience of household work and household management, whilst as keen as anyone can be about raising the status of domestic work and spreading a knowledge of practical hygiene, see in the almost unprecedented popularity of this new brand of pseudo-science a real and serious danger to girls' education. They deny the possibility that "science can be directly and adequately taught in the kitchen," or by means of any course the primary aim of which is the explanation of the very complex processes of housecraft, and the subject-matter of which is chosen and arranged accordingly. They believe that from its very nature such a course is open to grave theoretical objections, which are being more than justified by the experience now accumulating as to what the teachers of domestic science are actually doing in the class-room. The standard of work would, they think, not pass muster in anything connected with boys' education or men's scientific work.

The examination and teaching syllabuses of domestic science are full of glaring defects: faults pedagogical, faults scientific, faults of language and of style, violations of common sense. A few examples only can be given:—The chemistry of soap comes before that of ammonia.—Children of about thirteen are expected to know about the composition, properties, nutritive value and functions of food and beverages, about common ailments and their remedies, and the management of a sick-room!—In what seems a preliminary course of elementary heat, we find: "Effects of heat on different substances; (*sic*) ice, water, copper oven or kettle, bread." The *substance* copper oven! And what logic goes to the formation of a trio in which the simple substances water and copper are linked with the highly complex bread?—In a large high school, well known for its early acceptance of the gospel of domestic science, the first science lesson given to girls of about thirteen deals with emulsions!

And when we examine the manner in which the individual facts and phenomena are dealt with, we find a method which is the very opposite of scientific and bound to do positive harm, giving as it does an absolutely wrong impression as to what constitutes scientific proof, encouraging make-believe and sham, and fostering those very qualities of vagueness and blind acceptance of dogmatic assertion the prevalence of which in household matters domestic science promises to do away with. Thus:—"The scheme deals with milk first, because in milk the children can find out by experiments carried out entirely by themselves in the laboratory all the food-stuffs necessary for life." How do they know which are the food-stuffs necessary,

¹ The syllabus is too long to be included in the symposium.—EDITORS.

how these are separated and identified? You might as well send children unable to read or to count beyond ten to the Record Office to find out the dates of the kings of England!—"A bluish-black inky substance is obtained: this is a test for tannin. Repeat with the clear coffee and the cocoa; almost similar results are obtained, and so the presence of tannin in each is demonstrated." *Almost similar!!!*—One property, the smell emitted on burning, is made the absolute and final criterion for the presence or absence, and even the amount, of the important food constituents, protein being associated with the smell of burning feathers. "Take some of the dry turnip and heat in the spoon; plenty of fumes are evolved that smell like burning straw, or sugar and paper mixed, thus indicating that protein is practically absent." The ludicrous inadequacy of the proof should be obvious; but if it be accepted, would it not follow conversely that feathers are a food-stuff *par excellence*?

MISS F. GADESDEN, M.A., Headmistress, and Miss S. FROOD, Nat. Sc. Tripos, Science-mistress, of the Blackheath High School, London, S.E.

THE chief aim in teaching science in schools should be to inculcate scientific method. Principles should be taught rather than details.

We consider that the principles of scientific method are best taught through the medium of elementary physics and chemistry; and that all subjects such as botany, physiology, hygiene, domestic "science," any of which might well be included in the curriculum later, should be based on the scientific training and knowledge gained in the three, or preferably four, years' course in elementary physics and chemistry.

We do not think that the course in elementary science need be "unreal." Wherever possible, examples should be chosen bearing on everyday phenomena, but in no case should the choice interfere with the chief aim, viz. that of the acquirement of a scientific attitude of mind. We entirely agree with the opinion that domestic "operations" should be taught as home arts, and that their scientific treatment is more suitable for post-graduate study.

We cannot agree that botany provides the best means of training girls in scientific habits of thought and work. It is as good or a better subject than either physics or chemistry for training the powers of observation, but not for inculcating "scientific method."

R. HENRY JONES, M.Sc.

Head of the Chemical Department and University Day Department, Harris Institute, Preston; Lecturer in Science, Training School of Domestic Science, Preston.

I AM convinced that the science taught in girls' secondary schools is too academic, often leading the pupils to believe that science is something apart from everyday life: "this is science," on the one hand; "that is cookery," on the other.

A girl asked whether the science taught helps in her domestic subjects truthfully replies, "Not at all; there is no connection between them." If the science teaching leads to this quite common conclusion, how can it be regarded as anything but a failure?

Up to ten years ago—after an honours degree course, two years' research work, and six years' teaching—I was on the side of those who believe that the teaching of "domestic" science—*real* domestic science—is altogether impossible without many years' study of chemistry, physics, physiology, botany, biology, &c. Slowly I became convinced that such an attitude in my case was far too uncompromising, if not even doctrinaire. Why? A girl will devote three, four, or five years to pure science in a secondary school and leave without having touched any "domestic" science. This, in my opinion, is deplorable, because of the very probable false impression left on the mind of the girl. All science teaching should be designed to convince the girl, *as early as possible*, that its truths are inextricably interwoven with daily doings. After the usual course of study (say two years) the pupil often imagines that science is up in the sky and everyday life here below. The only common-sense view is to introduce the "domestic" application as soon as possible, and deal with pure and "home" science concurrently, or as occasion demands.

I refuse to admit that this course of a combination or alternation of pure and applied or "everyday" science is not strictly educational. The scientific attitude of mind can, with care, be acquired quite as effectively in this way as through exclusively pure science channels. Those who adopt the high academic view attack my attitude in this way: Milk, for example, on being carefully distilled yields a colourless, odourless liquid looking and tasting like water. They would have me and the pupil prove it to be water by determination and examination of its freezing-point, boiling-point, density, neutrality to litmus, action on anhydrous copper sulphate, &c. Would not this mass of secondary work, excellent in its way, distract the mind of the pupil and detract from the main idea—the study of milk? It would, of course, be very interesting absolutely to prove the liquid to be water, but is it necessary? is it desirable? is there time for it? Seeing that thousands of gallons of milk are daily consumed as food and drink, the colourless, odourless, tasteless distillate is scarcely likely to be anything but water! Is not the conclusion a common-sense one, and the only one? It may not be strictly on the lines of academic perfection, but should not our scientific standard and attitude be accompanied and, if need be, qualified by common sense?

Again, the academicians (if I may use the word) would argue that it is impossible to say what proteins are, or deal with them effectively. Suppose I give a parallel case. A very frequent *portion* of a question in elementary chemistry is to ask what an "atom" is. The examiners expect and receive answers—of a kind, of course. They, however, persistently ask the question, and it has the sanction of the Board of Education. What would the learned man of science say if asked for information about an "atom"? Perhaps "I do not know, but—" Sir J. J. Thomson would

probably deliver a dozen lectures on the matter. Similar cases could be mentioned almost indefinitely.

Neither the study of pure science nor the teaching of the "home arts" or "crafts" *exclusively* is satisfactory. The only way is to compromise (is not life a huge compromise?); for the strict man of science to relax somewhat—to come down a little from his academic pedestal—and for the "craftswoman" to climb; then for the two to meet and join hands in mutual sympathy, both imbued with the desire to help each other in the guidance of girlhood.

MISS CHARLOTTE L. LAURIE,
Ladies' College, Cheltenham.

IN considering the course of work in science for girls in secondary schools who are not intending to study for a professional career, it is important to bear in mind that there are at least two types of secondary schools. Since the Education Act of 1902 many schools have been opened by county councils and corporations in which the leaving age is sixteen, about two years earlier than that which obtains in many other schools of a different type. Obviously, the same course of work is not possible in the two cases.

In my opinion, the prime object of all education, not only of the science work, is the development of a right attitude of mind. What is called the scientific attitude is a necessity in every department of study, be it literature or languages, chemistry or physics. For this reason the science work should be planned with the definite intention of developing this attitude. The question then arises: Is it possible to plan the science work so as to attain this end and at the same time provide instruction in domestic science? I think it is.

In both types of schools, from the ages of ten to twelve, a well-planned course of nature-study should develop the habit of observation. To make acquaintance, under the guidance of an enthusiastic teacher, with the nature that is around us may give a child such a love for plant and animal, for moor and mountain, for field and hedgerow, as may prove a real solace in the strain and stress of after-life, and there is no doubt that the habit of observation and reasoning thus developed will be of great practical value in the study of domestic science.

From twelve to fourteen, elementary chemistry and physics should be studied, primarily to secure a more direct and precise training of the reasoning faculty than is afforded by nature-study or botany. Here it may be remarked that botany as at present taught does develop the reasoning faculty, but in my opinion experimental work in chemistry and physics does so better, and I am convinced that any advanced study of botany should be preceded by an elementary course of physics and chemistry.

By the age of fourteen a girl thus trained will have had some definite training in observation and in reasoning, together with some knowledge of the life of plants and animals, some acquaintance with the physical and chemical laws at work in the world in which she lives. It is about the age of fourteen that the work in science for the two types of schools should

be differently planned. Girls who leave at eighteen may well continue either physics, or chemistry, or botany, according to individual taste, until the age of sixteen. In large schools where there are several teachers of science, it would be possible to have parallel science classes at the same hours, so that a girl who showed special aptitude for either chemistry, or physics, or botany, might have another two years' work at her favourite subject. We science teachers have—as everyone has—*les défauts de nos qualités*, and are apt to think that all virtue is to be found only in the particular science we teach. I would plead for more catholicity, and urge that the girls' tastes should be considered, as they can easily be in large schools with a large staff and well-equipped laboratories.

At sixteen, a domestic science course of two years, including kitchen-laboratory work, will be possible in schools of this type. It is a question, however, whether it would be desirable for girls of fourteen, who are going to leave school altogether at the age of sixteen, to spend so much time as kitchen-laboratory work demands in domestic science. I think not, for at that age a great deal of time should be given, not only to scientific, but to literary and linguistic, studies. I would therefore suggest that from the age of fourteen to fifteen chemistry should be studied, more especially in its bearing on domestic science, and that at the age of fifteen, cooking, laundry, and housewifery should be taught practically, as arts, some portion of the curriculum being still devoted to literature and kindred subjects. It is through literature, rather than through science, that ideals are imbibed, and a scientific and democratic age, such as the one in which we live, cannot afford, by the exclusion of the humanities at an early period in the development of character, to deprive the rising generation of an acquaintance with the ideals in which our history and literature abound.

MISS E. M. LEAHY, M.A.

Headmistress of the Croydon High School for Girls.

THERE are those who maintain that there is no science worthy of the name to be taught to schoolgirls in connection with household matters. All that is well done in a house, they say, is done by happy accident. There is nothing possible but household art, which is largely empirical and mechanical.

But I venture to think we are on the threshold of a new era for educated womanhood. During the last thirty years woman has shown her ability to profit from the university and higher technical education previously given to men alone. There is no longer any need to prove that she has mental power and gifts worthy of the best possible training. Therefore the education of girls may now pass into a more enlightened phase, in which the relation of the school training to the future lives of the girls will have due consideration. In this development the application of scientific principles to household arts will follow.

It is needless to press the claim of science as educational training of the most valuable order. The girl who has learned, by sound training in elementary science, to make accurate observations, to investigate

and experiment with care and patience, and to weigh evidence before coming to conclusions, will be better fitted than the girls of previous generations to battle with the problems of cookery and housewifery, which, I am told, offer many unexplored fields to scientific research. The household of the future will depend more and more on scientific equipment, and much household work of former days will be abolished. We have all lived long enough to see many improvements in this direction; the children of to-day will doubtless see many more.

The mistress of the household of the future will need more knowledge if she is to make effective use of modern appliances, and her work will not only be lightened, but made far more interesting if she has some knowledge of the science underlying the household arts in which she should be an efficient worker. I trust it will not be supposed that we wish to introduce some sweeping revolution in science teaching in girls' schools. I speak with all humility as an unscientific person, but it seems incredible that there can be one basis of scientific knowledge for the girl who is going to take the natural science tripos, and quite another foundation to be laid for the girl who will afterwards specialise in what is called home science for want of a better name.

There can surely be only one road for beginners in elementary physics and chemistry, and we do not wish to alter the sound scheme of training which is doing so much to develop the intelligence of our girls. But we do ask that there shall be a very sympathetic attitude on the part of our science-mistresses to the general purpose of our girls' education. We ask that, whenever possible, illustrations may be taken from everyday experience in the home, and the girls' attention constantly directed to experimental work in connection with such experience. We ask that it may be borne in mind that very few of our girls are going up to the university to study science, but that all of them are going to be women. Every woman needs to specialise as a home-maker, whether she is, in the future, married or single, working at a profession with a little home of her own, managing a large household of children and servants, presiding over some institution, or taking part in social and philanthropic work. The science teaching must, therefore, whenever possible, draw illustrations from household environment.

MISS EDITH S. LEES,

Senior Science-mistress, Clapham High School.

A TEACHER'S views as to what should be the character of the science taught in girls' schools must depend largely upon her views as to the use of the school-time as a whole. If she regard school-time as a period during which teachers are trying to educate, in the sense of trying to educe the faculties of girls and make them so far as possible able women, then she will first consider what faculties are best and most easily developed by science, and, having come to some decision on this point, she will next consider what kind of work in science is best fitted for the main purpose which she has in view.

The power of forming such judgments as these must depend, at any rate very largely, on the possession of an adequate knowledge of science. It will be generally admitted by students of science that amongst its chief characteristics are order, sequence, and continuity. As Prof. Arthur Thomson so tersely expresses it, "Science is criticised, systematised, and generalised knowledge." The student of true science collects facts which he carefully sifts, he arranges them in order, classifies them, and seeks the simplest arrangement; he describes his facts as completely and simply as possible; from them he forms inferences which he carefully tests, and finally he obtains a general formula or law.

The habit of mind thus acquired, of clear and ordered thinking, of forming a judgment on facts unbiassed by personal feeling, is characteristic of the scientific frame of mind. I do not wish to infer that school-time is long enough for such a habit of mind to be fully formed, but I feel quite sure that girls badly need to form such habits, and school is the place for fostering the early beginnings.

Granted that the teacher wishes to inculcate this method of science, she would probably:

(1) Choose a series of "laws" which she can, in some quite logical and reasonable manner, link one on to the other, so as to secure continuity during a course of two or more years.

(2) Make up her mind as to what facts she can bring to the notice of the class for them to sift, and arrange, and infer from, and test in order to arrive at each "law."

It is obvious that if the teacher is following out some such plan as this, she must be free to choose such facts as will best serve her purpose. The imparting of facts is not her main object; she is using the facts for a further purpose; but, of course, any good teacher would, in her selection, take account of what would be interesting and instructive, and likely to be appreciated by the class. Moreover, the teacher leads the class in this method to do so much work round and about the facts that there is a reasonable chance of these bits of knowledge becoming real mental furniture, not mere lumber. The child will probably remember them, whereas when the teacher's chief aim is imparting as many as possible of such facts as may be useful in after-life, the child suffers for a time the storing of lumber, and then casts it all to the four winds.

I myself have had some experience in teaching biology, chemistry, and physics, and I have come to the conclusion that by far the best, most manageable, and most economical subject for the science work for girls from twelve to fifteen or sixteen years of age is elementary physics, followed by elementary chemistry.

Whilst being strongly in sympathy with the movement to teach girls domestic matters, I believe they should be taught as arts, at a time when the arts can be practised. In the schemes and syllabuses I have seen of "Science of Home Life" or "Domestic Science" I have been unable to recognise either good art or good science. There is not sufficient practice for the art, and the appalling number and variety and the nature of the facts would make the inculcation of

scientific method impossible. The divided aim seems to court disaster.

To take one example in illustration. At a public meeting I heard an enthusiast for domestic science— anxious to use an example from the kitchen— suggest that a lump of potato should be taken for a lesson on solubility instead of some unfamiliar chemical. The object of the lesson was to show that a solid was more soluble in hot than in cold water. It was suggested that equal weights of potato should be put in equal quantities of boiling and cold water respectively for ten minutes, and that the amount of material dissolved should be ascertained. As a science-mistress I foresaw difficulties, but I gave the experiment a fair trial, and entrusted it to two bright classes. The following are some of the difficulties that arose, and that will make me avoid potato for the future :

(1) It was more tiresome for the girls to get equal masses of potato than equal masses of salt or any other soluble powder.

(2) One objected that it would be unfair to have more skin on one piece than on another, and when all skin was abolished it was found to be only fair to have equal amounts of potato surface exposed to the water. To get equal masses with equal surface was not easy.

(3) There was some difficulty about equal quantities of boiling and cold water, as I would not risk boiling water in the measuring jars.

(4) Small pieces came off the lump of potato in the boiling water, and the slimy liquid refused to go through filter paper until most unfair holes had been made with a hatpin.

(5) All attempts to evaporate the liquids in weighed dishes on sand baths were met by the burning of the extremely small quantity of residue.

It was quite obvious that the class felt that as a scientific investigation the experiment was a failure, though they enjoyed the toasting of bits of potato during the tedious process of evaporation. I asked myself: What was the gain from a domestic point of view?

With regard to such subjects as botany, physiology, and hygiene, I believe them to be most useful for girls to know something about. I learnt them in my own schooldays, and would have them taught now, but not as science. For the purposes of science, the facts are complicated by "life"; they are too difficult, and the experiments too long to afford sufficient practice in method.

MISS HELENA L. POWELL,

Principal of St. Mary's College, Paddington.

IN response to your invitation to express my views as to the demand that the science course in girls' schools should be adapted to the direct preparation for "home life," I am constrained to express the grave apprehension with which I view the movement, as tending to give up the whole contention for a liberal education so far as girls are concerned, substituting for it what is really a technical training, however much that issue may be obscured by the very plausible argument that home life is the ideal environ-

ment of a woman, and may therefore be held to stand for that "life," in the fullest sense, for which education should prepare. Others qualified, as I am not, by scientific learning to pronounce on the question, have uttered serious warnings as to the futility of a course of scientific instruction so narrowed, as regards science as such.

But beyond this the practice is to be fought on the broad ground of educational principle. The question is, whether we teach science as of value as knowledge in itself, or for the sake of its utility in any one department of life. If once the utilitarian principle is admitted with regard to the teaching of science, there is no valid ground for resisting it in any other department of education, and I look forward with some anxiety to the time when the same principle will be extended to other studies; when, for instance, a course of English literature, calculated to prepare for "home life," will be drawn up on the principle of selecting such works, or parts of works, as can be considered to bear upon, or contain allusions to, "home arts." In "Paradise Lost" the passage culminating in "no fear lest dinner cool" might be chosen as appropriate to the desired end, and the rest of the work rejected as irrelevant; since modern "hygiene for the home" would refuse to allow the frugal housewife, mindful of the drawing-room carpet, to echo from Satan's address to the Sun, "How I hate thy beams." Macbeth, again, affords such a suitable selection in the injunction, "Go bid thy mistress, when my drink is ready, she strike upon the bell." And the student's imagination may be allowed to dwell upon the probable ingredients of the drink in question.

It is with no desire to speak slightly of home life as a vocation for women that I reject the proposal to narrow the field of her research to this special end. Rather it is because of my conviction that this vocation, no less than any other, demands the fullest development of all the faculties of human nature that I protest against these restrictions of the range of woman's intellect in the search of truth, and in support of my conviction I would urge the consideration of the weighty words of Lord Morley :

"A writer may start from one of three points of view; he may consider the woman as destined to be a wife, or a mother, or a human being; as the companion of a man, as the rearer of the young, or as an independent personality, endowed with gifts, talents, possibilities, in less or greater number, and capable, as in the case of men, of being trained to the worst or the best uses. Of course, to everyone who looks into life, each of these three ideals melts into the other two, and we can only think of them effectively when they are blended. Yet we test a writer's appreciation of the conditions of human progress by observing the function which he makes most prominent. A man's whole thought of the worth and aim of womanhood depends upon the generosity and elevation of the ideal which is silently present to his mind, while he is specially meditating the relations of woman as wife or mother. Unless he is really capable of thinking of them as human beings, independently of these two functions, he is sure to have comparatively these

N N

notions in connection with them in respect of the functions which he makes paramount."

LADY RÜCKER.

I FEEL strongly that some reform of our present system of girls' education is required, and that the health and welfare of the nation are suffering from a failure to recognise that, where post-school education is not possible, training must be given during the school period for the life a woman has to lead. I venture to assert that there is not a doctor in the country who could not reveal sorrowful tales of lives of both mothers and children crippled, if not lost, by an unnecessary ignorance, and this in all classes of society.

Further than this: the appalling waste of the nation's resources caused by the ignorance of women in the rules of economic management, or of the right use of household materials, not to mention the science which should govern a house—this ought surely to be prevented if our education were on right lines.

We are beginning to realise in this country that, with the ever-increasing amount of scientific knowledge at our disposal, each profession must be willing to leave on one side those sections of a science which do not bear upon the problems with which it has to deal. It is only in this way that the engineer, the doctor, or the agriculturist can cope with the mass of knowledge required for his profession. In the same way, the science of a household does not necessarily include all branches of physics, chemistry, physiology, and biology, although certain sections of these sciences must be fully studied by those who wish to be experts in household administration.

How far can this knowledge be introduced into the crowded curriculum of a school, and how far can it be made of real educative value? I believe that all educationists will agree with your first proposition, and that any scheme which proposed "a smattering of ill-digested and ill-understood information" would stand condemned. The first object of all schemes of school education must, without doubt, be educational in the widest sense of the word. But the training will be incomplete if it does not enable the student to apply the knowledge learnt in school to the problems in life with which he or she is confronted. Surely a course of science taught by those who have studied its applications to the requirements of a profession may, even in its elementary stages, be vitalised by apt illustrations, which help the student to realise the object of the teaching, without detracting from the value of the science taught!

Would an engineer be accused of teaching ill-digested science to lads because he drew his illustrations from engines, and made it further practical by the making of engines in workshops, as is done at Dartmouth College and elsewhere, with excellent educational results? In the same way, the teacher who has taken a specialised degree course in a university (under a professor who can make the much-needed research) should be able to teach the fundamental science required as thoroughly and accurately as at present, and with an added interest. Indeed,

it is to be hoped that the standard may be raised. As the doctors are asking for a preparatory fundamental course in science to be given to boys between sixteen and eighteen, so ought women to demand that room should be found during school-life for the sciences which they so greatly need.

With regard to your second point, the domestic arts will, of course, always remain arts; but there is proof to show that the girl who has been taught some science and how to apply her knowledge is more likely to acquire the domestic arts quickly. The advanced study of the physics, chemistry, physiology, bacteriology, &c., underlying household affairs must necessarily be relegated to the university period of study, and it is to be hoped that the work may ultimately be successfully carried through during an undergraduate's career (especially when the schools can give a better preparation). Meanwhile, the four-years' course offered at King's College for women, or the one-year of post-graduate study there, seems to be the first attempt at a solution of this part of the problem.

As to your third and fourth points, I believe that many girls, who are not now attracted by the scientific teaching in schools, would find a new interest if they saw where it was leading, and that if science became part of every girl's education many more would be inspired to carry it further.

With regard to botany, it may no doubt be successfully used as a first stage before teaching biology and physiology, but the latter must be taken if hygiene is to be successfully taught, and, if rightly taught, it will help women to self-management and self-control. Many well-qualified doctors concur in the view that the laws of health taught by the aid of science will check morbidity and produce a healthier, happier race.

Where this more advanced teaching can be given in a post-school year, it is no doubt of greater value, but where only a fraction of a girls' school can take this extra year it becomes urgent that the teaching should be included before the student leaves. It is to be hoped that the universities will take the matter in hand. Until they do so it is almost impossible for the schools to take much action. They are forced to prepare some students for the universities in order that the parents may be assured of the standard of the teaching, and this regulates the whole school course.

When the universities recognise, as they are beginning to do, that the profession of household management requires as advanced and specialised a scientific training as engineering, agriculture, or medicine, and needs the opening of university research laboratories, then we may hope to see this subject take its rightful place, and encouragement given to the girls' schools in this country to prepare their students for the lives that 99 out of every 100 of them will have to lead.

MRS. W. N. SHAW.

THE problem of teaching science in schools was a subject of much discussion many years ago, when the same arguments were adduced that are now in vogue. That the problem has been successfully solved in the case of boys leads us to hope that some satisfactory

solution may be arrived at for girls. The aim of all education must be to enable the student in after-life to form a right judgment in all things. It will, therefore, seem impolitic to teach science in such a way that it shall be applicable to only one set of phenomena. That the demand for the instruction of girls in domestic subjects is increasing is not a reason for referring scientific education solely to the domestic arts, nor for including these in the school curriculum.

Prof. de Morgan has said: "It is not sufficient argument for the introduction of such pursuits (into schools) that their practical applications are of the highest utility to the public and profitable to those who adopt them as a profession. The same holds of law, physics, or architecture, which, nevertheless, find no place among the studies of the young." And Prof. Herschel has pointed out (1851) that "We must never forget that it is principles, not phenomena—the interpretation, not the mere knowledge of facts—which are the objects of inquiry to the natural philosopher."

The object of scientific training is the development of the reasoning powers, the formation of a scientific habit of thought. This can only be acquired by the systematic study of a fully developed science, so organised that the illustrations used shall render successive steps of the reasoning easily comprehensible by the pupil. The phenomena of daily life are not simple, the chemical processes involved are complicated, and the endeavour to give a scientific training illustrated only by such phenomena must involve the dogmatic statement of many associated scientific principles on which the phenomena depend. Dogmatic statement to be accepted by the pupil with illustrations, and not proofs, forms no part of scientific method.

The argument for the selection of botany as a most suitable scientific study for girls would seem to depend upon the opinion that the collection and arrangement of flowers is a ladylike pursuit. It is no doubt true, but the reasoning faculties are not exercised in collecting and classifying plants and flowers, and as soon as we come to a study of the plants themselves, their growth and change, we are confronted by problems which can only be solved by reference to laws the study of which is included in "physics and chemistry." It would seem that the sciences which lie at the foundation of movement and change, and are therefore essential to the understanding of all natural phenomena, are those which should have a place in the school curriculum. Physics and chemistry require special provision for their study. They cannot be learnt from books alone, and this, no doubt, is one reason for their disfavour with the managers of girls' schools. The building and fitting of laboratories involve considerable expense, but the money is well spent if the result is a training in scientific method accompanied with a knowledge of those scientific principles without which no other science is complete.

The aim of education is to place in the hands of the pupil the weapons which will serve to carve out his career, whatever that career may be. If the study of physics and chemistry is not found interesting to girls, the fault, I venture to think, lies with the teacher. "The track which should be followed is that of discovery, the ability to pursue which is nearly universal,

though the sagacity to mark it out is the gift of the few."¹ It is impossible adequately to teach the elements of a subject without a grasp of the subject as a whole. The successful teacher must have such a grasp of the subject as to be able to adapt it to the immature mind, for the methods of the university are not the methods suitable for the school. The object of teaching science in schools is not the training of chemists and physicists, nor even of housewives, and it is probable that a mixed course of physics and chemistry is the most appropriate for general purposes; but such a course can be evolved only by those who have a firm grasp of the principles of both sciences—a proper appreciation of and sympathy with immature minds. The illustrations must be those in which cause and effect can be clearly traced. That some illustrations be drawn from the phenomena of daily life is desirable, but these illustrations require to be very carefully chosen, and to be used as supplementary to those of the regular course. In teaching science to boys no question is asked as to the *particular application* that is to be made of the principles involved, and the same should be true in the case of girls. Scientific training should not be dwarfed by referring it solely to one set of phenomena. Its main value consists in the tracing of cause and effect, in the use of the reasoning powers to decide in any case as to what is evidence and what is not, and to prepare the student from a knowledge of past events to predict what may be expected in the future. This judicial state of mind can only be induced by the study of carefully selected examples such as are usually found in a systematic course of science. The principles involved in the study should be such that, if the reasoning powers have been rightly developed, there will be no difficulty in applying them to social and other problems. If a girl has rightly studied physics and chemistry, she will easily bring the principles to bear on cookery and housewifery. It will, indeed, be a source of pleasure to her to find how extensively applicable such principles are.

Cookery, laundry-work, and the general management of a house as regards its cleanliness, and the health of its inmates, are arts that can be learnt and practised successfully with very little scientific knowledge. "The professed cook" has no scientific training, but the dishes she turns out are often admirable from every point of view. Although we do not advocate the teaching of domestic phenomena solely as arts, yet it cannot be doubted that it would be a very great drawback to the development of the reasoning powers of girls if their scientific training were made to depend entirely on these. Domestic arts should be relegated to their place in continuation schools. The school life of a girl is short when we think how much depends upon it, and during that time attention should be directed to the development of her mind and the formation of her character.

That most girls take a delight in cooking, washing, cleaning, needlework, and such like pursuits, makes it possible for these arts to be practised to some extent as recreations, out of school hours or in vacations. Their serious consideration can very well wait until school and college education is complete.

¹ De Morgan.

PROF. ARTHUR SMITHELLS, F.R.S.

Professor of Chemistry in the University of Leeds.

I IMAGINE that all contributors to the discussion in which you have invited me to take part will agree on certain points, of which the three most important are :

(1) That the school curriculum should include in some measure both the physical and the biological divisions of science.

(2) That a grasp of the broad principles and methods of natural science is more important than the detail of information.

(3) That, subject to the foregoing, the more closely the teaching is knitted to the things and phenomena of daily surroundings, the more likely is it to be at the same time interesting, impressive, and productive.

Another point might be added, but I do not feel sure of such general agreement :

(4) That many people charged with the duty of teaching science in girls' schools, if they were relieved from the bonds of the established external examinations, and were free to think of the most valuable course of science they could give to pupils who on leaving school are going into the world, would view science in a totally different way.

They would, I think, try to teach far less; they would teach more thoroughly and more humanly; they would cease to be dominated by the orthodox informational content of "the subject," and the idea of giving a conspectus of separated sciences would be superseded by that of teaching what was primarily important in human life outside universities.

The red rag of the discussion is no doubt to be found in the term "domestic science," and as I write the words, I have in my ears the inflexion with which they have been so often uttered to me. It is a pity we cannot indicate a point of view without using a special term, but it is not easy to avoid it. Nor is it easy to prevent extravagances in any new departure. It is tiresome to have to listen to expostulations about the futility of teaching the whole chemistry of cookery and laundering to girls at school.

The limits necessarily imposed on your contributors scarcely leave room for an array of arguments. I will be content therefore with an assertion. If a science teacher who has been well trained in science, as usually imparted at a university, will blot out all thought of university standards (this requires a supreme effort or an additional *anti-academic* training) and endeavour to teach with the view of making science educational (I borrow your own word), stimulating, and real, she (or he) will find science detach itself from a vast number of topics that have become traditional, and wind itself round a vast number of things that are of special interest and great importance in the household. An incompetent teacher (and we must recognise the existence of such in all ranks) will, of course, only become more conspicuously incompetent when trying to depart from a beaten track. Lastly, I would say that I have a great reluctance to laying down the law for teachers in schools; but the first teaching I ever attempted was in a girls' high school, and I have at least a first-hand knowledge of a wrong way of doing it.

MISS IDA E. SOUTHERDEN, M.A., Head of Biological Teaching, and MISS EVELYN MINÔT, Head of the Domestic Department, Clapham High School.

WITH regard to the points raised :

(1) We agree that the prime object of a school scheme of science study should be educational, and that the acquirement of a scientific attitude of mind should be aimed at, not a smattering of information about the various household departments.

(2) We agree, too, that domestic operations should be taught as "home arts," and that the complex nature of their scientific treatment makes such treatment suitable only for post-school study.

(3) To state that "the usual course in science is too academic" is a broad generalisation which cannot be supported without the decision of what the "usual course" is.

The course need not be too academic, and pure science may be taught with domestic illustration.

(4) We do not agree that botany provides so good a means as physics and chemistry for training girls in scientific habits. Valuable as it is for observation and classification, it is too complex a study to replace physics and chemistry, and in itself can be most profitably studied after a course of physics and chemistry.

We would add that the leaving age of the pupils must affect the stage at which the domestic arts should be introduced. With the school-leaving age of eighteen, we would recommend that a post-scholastic course should follow the school course, which includes nature-study, elementary physics, and elementary chemistry.

In schools, however, where the leaving age is sixteen, and since it is desirable that all girls should follow a science course, it would seem that the curriculum should be arranged to include, as well as the science course, some domestic course.

MISS ROSE STERN, B.Sc.

Senior Science-mistress, North London Collegiate School.

THE teaching of science in girls' schools has been causing much discussion during the last few years. The main points of discussion at present centre round the question whether the science course should be built on the foundation of the so-called home arts, or whether it should stand on its own foundation and be taught as science for science's sake.

Our aim in teaching science to girls is mainly :

(1) To train accuracy of observation.

(2) To develop scientific reasoning and manipulation.

(3) To acquire a knowledge of living things and physical law.

Science lessons, to be of any value as a training in the above points, must be built up from the study of simple things to that of the more complex, from the known to the unknown.

The subjects selected at the beginning of a course in a girls' school are usually nature-study, followed by elementary physics and chemistry. It is here that

division of opinion enters, especially with regard to the kind of chemistry to be taught. If chemistry is to be of any value as a training in scientific method, the experiments must be so selected that they follow one another in logical sequence, *e.g.* in studying combustion, if a metal be selected a series of experiments can be arranged which gradually lead the pupil to understand that combustion is oxidation, and that only a part of the air is used up during oxidation; this is followed naturally by experiments on the proportion of oxygen and nitrogen in the air and the separation of these elements. If, however, an organic substance be selected the probability is that by-products will interfere with the results that are wanted; this leads to a good deal of explanation on the part of the teacher, and very often to notes being given on the results which should have been obtained.

Another objection, to my mind, to the home arts course of chemistry, if I may call it so, is that the experiments are bound to be more or less isolated experiments; the result of this is that the girls lose interest, and chemistry becomes a purely memory subject to be forgotten as soon as the girls leave school. On the other hand, if a girl has studied the elements of chemistry in logical sequence she cannot fail to apply her knowledge to things she sees daily. An excellent series of experiments can be worked out on neutralisation of acids with the alkalies, and the investigation of the properties of the salts. If vinegar and lemon juice are the acids selected, many unnecessary difficulties are introduced, especially on evaporating the solutions, as decomposition, which cannot at that stage be understood by the children, inevitably takes place. If, on the other hand, the common mineral acids be used, the difficulties are avoided, and the preparation and properties of such everyday substances as common salt and saltpetre fully understood.

It seems to me that if the chemistry syllabus be built up on the foundation of the home arts it is taught without any scientific training, and simply as a means to an end.

The study of the science of the home arts is only suitable for girls who have a knowledge of inorganic chemistry, at least up to matriculation standard; after this has been reached some good work can be accomplished even by those of small scientific ability. The chemistry of cooking is so complex that the most advanced chemists are baffled by many of the problems. How can we expect our schoolgirls to tackle even the simplest of these?

I have spoken strongly against the teaching of chemistry from the point of view of the home arts, but I should like to add that every good teacher in science in a girls' school should look for examples for experiments from substances which are known to the pupils, *e.g.* there is no reason why washing soda should not be used instead of another carbonate, and Epsom salts as a type of a sulphate, but care must be taken that the substances chosen are selected first for their value in scientific training, and, secondly, because they are known to the children.

I have not outlined any scheme for an elementary course in chemistry, but I should like to refer readers for such to an article by Mrs. Bryant in "Public

Schools for Girls," edited by Miss S. A. Burstall and Miss M. A. Douglas.

MISS FLORENCE STORR, B.Sc.

Senior Science-mistress, Central Foundation School for Girls, London, E.C.

THE consideration of the character and scope of the work in any special subject in a secondary school must be based on what I imagine to be a fundamental hypothesis, namely, that the object of the secondary school is to educate and to develop so far as possible in a limited time the latent possibilities and aptitudes of the pupil.

The secondary school is not to be regarded as an institution for perfecting technique in any direction, but a place where capability in every direction is encouraged to develop. At the end of the secondary-school career the special gift, whether of intellectual ability or technical skill, may be more fully trained. If this be granted, then it follows that the science work for all girls, whether they will pass to the university or to commercial life or to the home, should be such as will best develop their powers and train their intelligence. Further than this, or, rather, combined with this, the work should aim at awaking the faculty of wonder, and arousing interest in natural phenomena. The awaking of a living interest in nature, animate or inanimate, is of even more value to the growing intelligence than the actual facts which the memory retains. But it must be remembered that the mind which has been definitely trained in the elements of a subject is in a better position to become appreciative and receptive in later years than the untrained. Therefore that course of work is the best which will encourage the attitude of mind that is ready to see, to note phenomena, and to think logically.

In my opinion physics and chemistry afford better opportunities for both observational and deductive work than any other subjects, and should therefore be the basis of all school science work. Not many steps can be taken in botany, physiology, geology, or zoology without a knowledge of the elements of those subjects. Botany is often advocated as being the ideal school science subject, and there is much to be said in its favour. It brings the pupils into direct contact with nature, especially if there is opportunity for out-of-door work, and there is ample scope for arousing an interest which should outlast school life, but the subject does not provide the same possibilities for logical thought and argument. The experimental part of the work is mainly observational, and very few steps can be taken beyond observational work without a knowledge of the elements of physics and chemistry becoming essential. Hence, botany is best taught not as the chief or only science subject, but after a course of chemistry and physics, or concurrently with them. Nature-study as generally taught in the lower school naturally evolves into a more exact botanical study when the foundations of chemistry and physics have been laid. Again, there has been a movement recently to introduce what is described as "domestic science," to make, it is stated, the science work of more real

value and of greater interest to girls. I regard any attempt to displace a course of experimental work which provides opportunity for observation, logical thought, argument, and clear expression as a retrograde step. It is scarcely possible to plunge a girl into problems of the kitchen, whether of cooking or cleaning, and to evolve from those problems any sort of training which can be regarded as really educational. These problems are often complicated, and always depend on a knowledge of physics and chemistry for their ultimate solution. The rational method of attacking the simpler of those problems is to give the girl a thorough practical knowledge of the elements of physics and chemistry, and then to apply that knowledge to explain as many natural and everyday phenomena as possible. Problems of this kind should stand in the same relation to the science course as riders do to geometry; they should not be made to take the place of the propositions.

If domestic work is to take a permanent place in the school curriculum—and there are strong reasons why it should—it is better to teach it purely as a handicraft than to destroy a well-thought-out scheme of experimental work for the sake of making it apparently more useful and interesting, whilst in reality it provides no training either in scientific method or technique. It is possible, however, if cooking is introduced as the domestic art, so to modify the chemical work after the foundations have been laid as to give girls an intelligent idea of the general composition of foodstuffs. These can be examined experimentally on precisely the same lines as the inorganic substances which have been dealt with previously, and the terms proteid and carbohydrate need not be merely names of some unknown hypothetical substance as so often they have been.

A practical inquiry into the action of heat on starch and white of egg, the behaviour of baking powder, fermentation by means of yeast, and similar subjects adds to the interest and value of the kitchen work, and technical skill is being acquired when the pupil is in a position to explain at least the simpler processes of cooking and domestic work. Such a modification at the end of the school course of chemistry does not interfere with the sequence of the course and does give opportunity for linking the science work with problems of home work. Further, it is possible for all girls to take such a course, whether proceeding to university work or not.

The introduction of domestic work on these lines seems most desirable, and is feasible, but the secondary school must lay the foundations of a scientific attitude of mind, and therefore it is essential that a practical, logical scheme of science work should always be an integral part of the school curriculum.

MISS MARY SPALDING WALKER, B.A.

Headmistress of the Roan School for Girls, Greenwich.

I THINK there is justification for each of the apparently conflicting views you tabulate, and that it will be a pity if any one of these gets itself accepted as the whole truth. Each school has to find its own proper solution for its own circumstances at the time,

and ought to reconsider things at intervals of about seven years. The home circumstances of the girls seem to me to be of chief importance in determining the amount and the kind of "homecraft" desirable during or after school-life.

For girls who leave about sixteen, and go home then to houses where little, if any, skilled domestic "help" is hired, a previous school course in household cookery sandwiched into the precious hours of the day-school has an undoubted practical value, which can be vouched for in hundreds of families at the present moment.

For girls who find comparative leisure waiting them on leaving school, it must be better not to trench upon their day-school time, but to let them (preferably) come back for special courses at the school, or, if that be impossible, elsewhere.

For both types, however, the school must not neglect to provide a separate course of elementary science work, properly graduated and related, so far as possible, to real life and to the other subjects (*e.g.* geography) studied. Given space and adequately equipped science-mistresses, it is not so difficult as might be thought to do this. Biology, chemistry, geology, physics, and physiology must contribute to this course, but these names need not appear in it. The mistresses must, for the present at least, be free to emphasise and to omit according to the circumstances, and there must be no outside examination in prospect.

What I do deplore about the present position of "housecraft," "home arts," or whatever the instruction be entitled, is that for the moment it has *no pecuniary value* in the eyes of the parents or anyone, and thus many a girl, who could *and would* on leaving school "run" the domestic arrangements of a small family, or, at all events, materially help in working them efficiently and economically, is lost entirely to that whole department of human effort, and, at any rate in London, sees nothing better to aim at than becoming either a clerk in a Government office or in a business house. Here, of course, I am speaking of the girls about whom I know most.

MRS. JESSIE WHITE, D.Sc.

MUCH discussion has taken place of late as to the advisability of recognising the special needs and interests of girls in framing the science syllabus for girls' schools. It has been thought that girls' science work has been dominated too much by the requirements, decided by university examiners, of those pupils who proceed to a university, and that the requirements for life of those whose future work will be household management have been neglected.

It has seemed as though the widening of girls' studies and of their opportunity for physical recreation has brought about a lessening of the interest formerly felt in housecraft and a lowering of the importance attached to it. The inward meaning of the home-science movement taken up by King's College is the realisation that our national welfare demands the reinstatement of housecraft as a subject of pre-eminent importance, with the further realisation that in days

when we know how to be scientific it will not suffice to be content with a mere empirical housecraft made up of saws and recipes handed down by our predecessors, but that the housewife must add to the skill of trained hand and eye a knowledge of the reasons which secure the success of her method.

The girls who continue the study of science on academic lines are comparatively few. With the exception of the medical profession, there are few openings for science women beyond that of the teacher. The consequence is that the study of science does not attract an ever-increasing proportion of women, and its popularity is not fostered among the younger pupils by means of the Civil Service examinations. This in itself is a serious drawback to the science teaching in many schools. The fact that much of the science work in girls' schools is really excellent speaks volumes for the soundness of the Armstrong influenced methods.

A questioning attitude is one natural to the pupil, and the advantage of science work is that the teacher can guide the pupil to put questions which it is really possible for him to answer. The pupil thus learns how knowledge is built up. He does not swallow ready-made facts, but derives his facts for himself from the objects he handles, and then, with the guidance of his teacher, goes on to systematise his facts and to realise the value of systematisation. Such training is indispensable for both girls and boys, and cannot be supplied by any linguistic training which does not involve the manipulation of real things.

The primary aim of science teaching is therefore to develop the habit of thinking scientifically. Yet since the pursuit of this aim provides information for the pupil, the question arises whether this information personally acquired must be the same for boys and girls.

To decide this finally needs experimentation. No teacher can say definitely beforehand how girls will work with certain material or what exactly are the lines of interest they will want developed in connection with it.

Two principles should guide the selection made by the teacher; first, the suitability of the material for the pupils' stage of development. It must be simple and workable. It must allow definite intelligible questions to be asked and answered. It must not involve manipulative processes too long for the pupil's span of attention. Secondly, given a choice of material equally suitable as regards the first head, the teacher should select that which is likely to be most fruitful in exciting a scientific interest in the pupil's environment. The girl's environment is primarily the home, and in days when we have abandoned primitive methods of heating and lighting, physics should form part of every girl's studies. I do not believe that the primary aim of science teaching will suffer if the secondary aim is to enable a girl to understand the way in which science has assisted us to make our houses more comfortable and healthy.

With regard to chemistry, the pupil is not properly equipped until she can read a chemistry book for herself. She must therefore gain an understanding of the way in which chemical facts are expressed in

symbols and equations. This understanding must be led up to by gradual steps, and arise naturally from the processes studied. I do not believe that anything is to be gained by a premature handling of organic substances for the purposes of an early introduction of the chemistry of food and cooking. In the recent attempts at framing a course on the chemistry of cooking there is a monotonous sameness in the experiments and a necessary absence of systematisation, because such systematisation as exists in these spheres for the expert organic chemist is too complex for the beginner. In dealing with simpler inorganic substances the beginner can feel his way towards systematisation, and the more he does so the more delight he usually takes in the subject. Certain substances familiar in the kitchen will inevitably get studied.

Until recently, many common organic substances, such as soap, were included in the London matriculation syllabus. They were excluded in favour of certain metals and their compounds. This inclusion is a gain provided no knowledge beyond what the pupil can acquire in the laboratory is required. At the same time, the exclusion of common organic substances is to be regretted. Such substances as phosphorated hydrogen might be excluded instead.

I agree with Prof. Dewey that set laboratory exercises which are only for the sake of manipulative skill, and are not a seed-bed from which theory and a wide understanding are to spring, are to be decried. They are opposed to the whole spirit in which the child should approach the study of science. He should come to it in a spirit of adventure. He has to win knowledge from obdurate matter. He must gird himself with patience and a spirit of carefulness. He must be neat and deft; clumsiness will rob him of the answer he sets out to seek. The knowledge gained is the reward. With girls for whom there is no opening for specialised chemical expertness examinations demanding it are wholly unsuitable.

It is on this account, as also on account of its stronger æsthetic appeal, that botany has so largely replaced chemistry in girls' schools. Botany examiners in school examinations confine their practical work to plant description, and fortunately so. The experimental work can therefore be used legitimately and in the only way calculated to afford interest and delight to the pupils. I do not for a moment think that anyone would seriously maintain that botanical experiments are better suited than chemical to evoke a knowledge of the way science springs from experiment. In simplicity, unambiguousness, length, possibility of repetition, they fall far short.

At the same time I hold that a girl's training ought to embrace a biological science.

In my opinion much more time should be given to science in the hours which a girl spends at school. Nature-study comes in the first years, and then there should be a bifurcation, possibly a trifurcation for physics, chemistry, and botany.

The home science lecturers at King's College are not demanding, as was once thought, some new knowledge for those who come to them. What they want is a better and wider grounding in science, more

power of applying mathematics, and more skill in expressing observed facts in lucid and correct English.

Any attempt to make room for the domestic arts at the expense of the time allotted to science will frustrate the aim which underlies the present unrest about girls' science work. Housecraft can only be dignified and improved by real knowledge. If the domestic arts are begun early and are taught suitably, they need trench on no subject which cannot better be postponed. One thing is certain, that they ought to find a place in the curriculum of every girl's and every scout's school. But in these days no boy or girl can afford to grow up without a personal knowledge of what an experimental science is, for the habit of scientific thought must perforce penetrate into spheres hitherto unconquered by it.

JOHN WILSON, M.Sc.

Head of the Chemical Department, Battersea Polytechnic.

WHEN science teaching was first introduced into girls' schools, the courses followed were practically identical with the somewhat academic courses in pure chemistry and physics taken in boys' schools, the most marked differences for some time being the greater attention given to "nature study" and the inclusion of botany as a specific subject of instruction. With respect to the value of botany as now taught in the schools as a means of training girls in scientific habits of thought and work, the writer cannot lay claim to the possession of any special knowledge or experience. It has often struck him, perhaps erroneously, that not infrequently botany teachers in girls' schools suffer somewhat acutely from that worship of the student's "note-book" which is a not uncommon weakness of women teachers. While realising to the full the necessity and the educational value of accurate description and pictorial representation of plants and the details of plant-structure, one has often wondered whether botany teachers do not mistake the "means" for the "end." The sympathetic critic and observer of the methods adopted by the botany teacher frequently comes away with the idea that the main object and result of much otherwise excellent and conscientious teaching is not the inculcation of scientific habits of thought and work, or even the acquisition of botanical knowledge, but the compilation by the student, after a lavish expenditure of time and effort, of a beautifully illustrated note-book. This, however praiseworthy from an artistic point of view, gives but little educational return for the valuable time which has been expended upon it.

The teaching of botany in girls' schools occupies a strong position in public estimation, partly perhaps from the fact that for nearly a century it has been regarded as a pre-eminently "suitable" portion of the higher education of girls. One would suggest, from a strictly educational point of view, that whilst botany teaching is undoubtedly valuable as a branch of general knowledge, as an æsthetic and humanising influence, and as an introduction to the girls of a type of experimental experience they would otherwise fail to acquire, it suffers as an instrument for the

training of children in scientific habits of thought and work from the complexity of the chemical and physical forces in operation in the growing plant.

Coming now to the chemistry and physics courses in the schools, the main point at the moment is the growing demand for a modification of these courses. The causes of this demand are: (a) much of the work, especially in the later stages, is practically useless to the girls in after-life, (b) the gradual development of housecraft instruction in the schools. We have now a strong movement in favour of a modification of the science teaching, so that the latter shall, so far as possible, correlate with the instruction in cookery and laundry-work.

The problem is undoubtedly difficult; the most serious obstacle being the fact that the materials employed in housecraft, such as starch, sugar, meat, flour, milk, and eggs, on the one hand, or cotton, linen, wool, and soap, on the other—to mention only a few common materials haphazard—are substances of a high order of chemical complexity; in fact, in many cases their chemical composition is but little understood. It must be frankly admitted that, even if it were necessary to do so, it is obviously impossible to explain to the children fully and precisely the composition of their materials or the complex physical and chemical changes taking place in the everyday household operations. It is possible, however, as has been well shown in a number of the suggested courses which have appeared from time to time in this magazine, to give the children, by means of a number of relatively simple experiments, an intelligent working comprehension of the substances and processes they employ in household work. The broad outlines become clear to the children even if, from a strict scientific viewpoint, the unnecessary precise detail is omitted. The science teaching now becomes a living, interesting subject to the girls, and the housecraft instruction educational. The adoption of the new correlated courses has been somewhat severely criticised at various times as tending to give a smattering of ill-digested and incompletely understood information respecting the complicated processes and materials used in the kitchen and laundry. This criticism is unduly severe and pedagogically unsound, so long as it is clearly understood both by teacher and pupil that only "broad outlines" of explanation are being aimed at in the courses. We do not, for example, discontinue the teaching of history in schools because we can only select for presentation to the children a few of the more obvious and apparent causes out of the many which determine the growth and development of any great historical movement or series of events. We rightly leave the study of the deeper and more subtle forces at work in history to a fuller experience of life and a greater development of intellectual capacity.

The suggestion has been made that "domestic operations should be taught as 'home arts,' and it should be admitted frankly that their scientific treatment is more suitable for post-graduate study, being impossible without much preliminary study of chemistry, physics, and physiology." On this point, it appears to the writer, (a) the practical value and the

indirect educational gain, both to the nation and the individual girl, of the teaching of housecraft are such that this branch of work should form an integral portion of the course in girls' secondary schools from about the age of thirteen years at least; (b) the girls cannot possibly reap the full practical and educational value from such teaching unless efforts are made, obviously preferably in the science courses, to explain so far as possible the materials and processes employed. In the preceding paragraph it has been suggested that although the *detailed* scientific exposition is impossible (and unnecessary) in the ordinary course of secondary-school work, yet the broad nature of the materials and processes can be made clear by relatively simple experiments and class teaching. It is doubtful, to the writer, if any very much more detailed scientific knowledge can be given even in the one-year and two-year post-scholastic courses which are in existence in some of the high schools. Any real advance demands the possession of a very high order of chemical and physical knowledge on the part of the teachers and the students, of at least an Honours B.Sc. level.

The lack of space prevents the detailed discussion here of the various ingenious courses which have been proposed from time to time in recent years for correlating the work in chemistry and physics with the housecraft instruction. For some years to come all such schemes must be tentative and experimental. Complete correlation is probably impossible, nor is it necessary. A careful study of the majority of these schemes will show that they provide in the earlier portions of the course a valuable training in scientific habits of thought in their treatment by the "discovery" method, of the composition and properties of air, water, chalk, acids, alkalis, and salts. In the older courses of pure chemistry, the children, after studying air, water, chalk, &c., generally drop the more or less strict "discovery" method, when studying such substances as the common acids and their chief derivatives, the principal elements and their more important compounds. The educational value of this portion of the older course is therefore relatively low. The newer correlated courses substitute for this relatively uninteresting matter a series of topics, treated at least in an equally scientific and educational manner, of undoubted interest to the girls, of value to them in after-life, and of material help in an important portion of their general curriculum.

A School History of Cheshire. By C. E. Kelsey. 224 pp. (Clarendon Press.) 1s. 6d.—Mr. Kelsey evidently knows his Cheshire and the history thereof. In this book he tells that history from geological beginnings to modern times, viewing English history in general from what was at one time a County Palatine. We have found it very interesting, and it must be more so to those who live in, or even visit the county. There are many illustrations, ten maps, and an index. To those who have puzzled over the "rows" of Chester, Mr. Kelsey can offer but little in the way of explanation as to origin, though he suggests one. But we are glad to know from him that the matter is a mystery even to the learned.

A SYSTEM OF SCHOOL LEAVING-CERTIFICATES; WITH SPECIAL REFERENCE TO SCOTLAND.¹

By J. STRONG.

A SCHOOL leaving-certificate should be based upon the satisfactory completion of a school course; it should also function as a passport to further education. These presuppose a clear definition (1) of the whole field of education, and (2) of the links connecting the various elements in it.

In general the primary school course does not end where the secondary begins. In consequence, while every facility should be provided for the transference of the abler pupils at the proper time from one school to the other, the leaving-certificate of the primary school is not necessarily the link connecting the two, but rather the link connecting it to a trade school or a continuation school.

It would be a gain to education if a permanent council, representing various educational interests, were created to consider and pronounce authoritatively upon courses of studies, and in particular devise a standard formula for a secondary course. With a generally recognised norm or standard, secondary education would gain not only in definition and simplicity but in character. The application of certain generally accepted principles is required in the first instance; experience would give the rest. Increase of individual differences with age means increase of specialisation as the school course advances. The danger of premature specialisation, and the possibility of late development of "bent," indicate the advisability of an intermediate period in the course, in which there should be modified or restricted specialisation. In any case there will be a constant process of adjustment. Some subjects should be compulsory, others optional. The principle may be enunciated that every secondary-school course should provide in its compulsory part characteristic subjects drawn from both humanistic and mathematical or scientific studies. According to the optional subjects selected there would be various types of leaving-certificates. These would all guarantee the satisfactory completion of a course of secondary education which, in its compulsory part, provided the essentials of a sound secondary education. In particular a leaving-certificate, while giving the right of entry to a university, should give the right to enter upon a particular course of study there only in so far as it testified to fitness for such study.

The entrance qualifications to the various professions and the grades and branches of public service could readily be correlated with the standard course. Business firms might define their requirements by some stage in the course.

These principles and conclusions are in a measure exemplified in Scotland. Secondary education is assumed to begin about the age of eleven or twelve and extend over five or six years. There is an intermediate course of three years, followed by a post-intermediate or leaving-certificate course of two or three years. The intermediate curriculum includes

¹ Abstract of a paper read before the Educational Science Section of the British Association at Dundee, September, 1912.

seven subjects: English, history, geography, mathematics (including arithmetic), at least one language other than English, science, and drawing. The post-intermediate includes at least four subjects, three of which must be English (including history), one language other than English, and mathematics or science. The intermediate certificate crowns the one course, and the leaving-certificate the other. The award depends upon a written examination, a class oral examination, and the teacher's opinion. The papers are set on two standards, and excellence in one subject may compensate for deficiency in another.

The intermediate certificate indicates the satisfactory completion of a well-balanced course of general education, suitable for those who leave school at the age of fifteen or sixteen. It also acts as a passport to certain technical institutions and continuation schools. The standard of examination practically precludes the study of more than two foreign languages in the course.

Leaving-certificate courses may be classified as general, linguistic, mathematical, scientific, artistic, or musical. There is no difficulty in selecting a group of subjects which meets the entrance requirements of the universities.

HISTORY AND CURRENT EVENTS.

WHEN we were writing last month, the war in the Balkan peninsula was just beginning; now it would seem that it is nearly at an end. This rapid development of events reminds some of us of the Franco-German war of 1870-1, which, so far as the French Empire was concerned, barely lasted through the summer holidays. In mid-July, the Parisian crowds were shouting "À Berlin!" On September 2nd Napoleon III. surrendered at Sedan. That war was prolonged by the resistance of the capital. What will happen at Constantinople? Therefore our minds are much occupied with this new stage of the Eastern question, the third great crisis in that conflict which has occurred during the lifetime of living men: the Crimean war is still remembered by our fathers; we ourselves can remember when Beaconsfield brought back "peace with honour" from Berlin, and now the young States which the conference of 1878 strove to hinder in their progress have dared, in defiance of the European Concert, to take the matter into their own hands.

Who are these attacking States? What is the State that they have attacked? It would be exceedingly difficult to trace the ancestry of the present inhabitants of the Balkan peninsula, so many have been the wars of conquest in that region, and that difficulty has helped to create a belief which, if not historically true, is effective in modern politics. Greece identifies itself with ancient Hellas, in spite of the fact that there must be much Latin blood there dating from the time of the fourth crusade. The Serbs are of the great Slavonic race into the midst of which Magyars and Bulgars thrust themselves centuries ago, and so also are the little Montenegrin people, though here again there has been much mixture from Albanian and Turkish sources. And now

these four States, two Serb, one Bulgar, and one Hellenic, at least in its own belief, have united (*mirabile dictu!*) against the common oppressor of them all—the Turks—whose Government, though struggling to reform, has failed to satisfy its former subjects.

AND the Ottoman Turk, who seems destined, whatever the result of the present fighting and of the subsequent congress, to lose ground once again, whence is he? Bursting from the uplands of Asia a thousand years ago, forcing himself on the Moslem world, to the faith of which he was a speedy convert, he was known to Europe for at least six hundred years as a merciless conqueror. Mediæval Europe met him in Palestine. The Eastern remnant of the Roman Empire fell before him during the fifteenth century, and it was not until in 1683 John Sobieski of Poland drove him from the walls of Vienna that his powers even began to decline. Among his triumphs must be reckoned his accession to the position of Khalifa, or spiritual head of the Moslem Church, and that accounts for the fact that it is possible to represent this present war as one of religion as well as race. But Turkish blood is no purer than that of the enemies; and a glance at the portraits of leading Turks is enough to show that there must be, as we know from their ancient customs there is, much that is not Asiatic in their composition.

WHILE south-eastern Europe is in wild confusion, we in Great Britain are, for the present, at any rate until the diplomatic situation becomes acute, fortunate in our comparative calm. In spite of all our economic and constitutional struggles, we have leisure to contemplate history, and as we write, the Lord Mayor of London is making a peaceful procession through the city over which he is to rule for a twelvemonth, in order to meet the judges at Westminster, and there present his homage to the Sovereign of these realms. Thereafter he will invite them to a banquet. The "show," as Londoners irreverently but fitly call it, is a relic of ancient times, when it was desirable that civic communities, struggling for privileges—"liberties" they called them—against King and noble should display their power. Now it has lost its ancient meaning, and must be tricked out with pageantry which, if the Lord Mayor is wise and fortunate, may be made to combine a little information with much harmless amusement—a little powder with the abundant jam.

ITEMS OF INTEREST.

GENERAL.

MANY teachers whose salaries are approaching £160 per annum are inquiring whether, if they earn additional sums from other sources by evening work, they will be exempt from compulsory insurance. There seems no doubt that if the income from their principal employment does not exceed £160, their principal employer must insist on their being insured. Thus a man whose income from his school is £150, and who earns £50 per year by teaching in the evening, must pay both his insurance and income tax. Income tax and insurance "tax" are not mutually exclusive; in fact, in order that the limit may be the

same in the two cases, a man must have no children and must earn the whole of his income from one source.

THE annual meetings of the Association of Assistant-masters in Secondary Schools will be held on January 1st to 3rd next, at St. Paul's School, London, W. The council will meet on the first two days, and the general meeting of the association will be held on January 3rd, at 10 a.m., when the resolutions passed by council will be submitted to the meeting for approval. To commemorate the twenty-first year of the association, a dinner will be held at the Waldorf Hotel, on January 2nd. Many distinguished persons and all former officers of the association will be invited to be present as the guests of the association.

THE annual meeting of the Historical Association will be held on January 10th and 11th, 1913, at the University of London, South Kensington. On January 10th the business meeting will be held at 3 p.m., when reports will be considered. At 5.15 p.m. Prof. Spenser Wilkinson will deliver an address on "Some Lessons of the War in the Balkans." In the evening a dinner will be held at University College, Gower Street, W.C. On the 11th, at 10.30 a.m., Mr. G. G. Coulton will read a paper on the standardisation of history teaching, and Miss C. A. J. Skeet one on how public libraries may be made more useful to students and teachers of history.

THE London County Council Education Committee has adopted the following resolution: "That, in the opinion of the Council, the new regulations for examinations for certain junior appointments in the Civil Service will operate unfavourably against (i.) schools in which two classical languages are not taught, and (ii.) candidates whose abilities are scientific rather than linguistic; that the Civil Service Commissioners be so informed; and that the Council be recommended accordingly." The age limits for these appointments are eighteen to nineteen and a half years, and they are, therefore, as a rule competed for by pupils from secondary schools. The subjects of the examinations are divided into three classes, those in Class I. being compulsory, and those in Classes II. and III. optional. The papers in Class II. are of a lower standard than those in Class III., the marks assigned to each subject being 2,000 in Class II. and 4,000 in Class III. The subjects in Classes II. and III. at present are:—Class II.: mathematics, French, German, Latin, Greek, history (English), chemistry, and physics. Class III.: mathematics, French, German, Latin, Greek, history (English and European), chemistry, and physics. From Classes II. and III. candidates may select subjects, one of which must be a language, carrying marks up to a maximum of 10,000. Under the regulations to come into force in 1914, European history is added to Class II., and history, chemistry, and physics are omitted from Class III. The proposed change will operate unfavourably, it is said, against (a) schools in which two classical languages are not taught, and (b) candidates whose abilities are scientific rather than linguistic. Thus, a boy whose best subjects are Latin and

Greek would take these two subjects out of Class III., and one subject from Class II. This subject might be any except Latin and Greek; or he could have a choice of seven subjects. A candidate whose best subjects are chemistry and physics would have either to take five subjects from Class II., or would be obliged to take the Class III. paper in a subject which was not one of his best.

A REPORT submitted to the meeting of the London County Council Education Committee on October 30 showed that there has been a continuous and marked falling off since 1908 in the number of candidates offering themselves for the profession of teaching in elementary schools. Statistics show that this decrease is not confined to London, but is also in evidence throughout the country. It appears probable that in a few years' time the number of teachers leaving training colleges will be insufficient to meet the needs of the schools. This decrease is, to a great extent, due to anxiety on the part of prospective candidates and their parents as to the prospects of obtaining employment. It may possibly be due partly to the period of good trade through which the country has recently been passing. The probability of this explanation is borne out by the fact that the decline has been more marked in the case of boys than in the case of girls, the number of boys having fallen in London from 263 in 1908 to 30 in 1912.

THE London County Council will award not more than eighteen scholarships in cookery to domestic servants on the result of a competitive examination in plain cookery to be held on or about December 3rd. The scholarships will be tenable as from January, 1913, at the L.C.C. Westminster Technical Institute, Vincent Square, S.W., and will provide half-time training in superior household cookery under a qualified chef. Scholars who successfully complete the course will be awarded a certificate, on which is stated the standard of proficiency attained by the scholar. As evidence of the value of the course of training provided by these scholarships, it may be mentioned that the majority of the holders have in the past been able to secure places in domestic service at wages considerably in advance of those which they received previous to their gaining the scholarships. Full particulars may be obtained on application to the Education Officer, L.C.C. Education Offices, Victoria Embankment, W.C.

THE day when the use of the kinematograph in the classroom will be possible seems to be rapidly approaching. Last month we referred to the discovery of one film—there is more than one—the use of which practically does away with the danger of fire, thus reducing the cost of installation. There are not yet many projecting lanterns which may be obtained at a reasonable figure, and this remains a drawback. We have just seen, however, the Hummel kinematograph, which costs £10, little more than the cost of an ordinary lantern, takes any standard film, and withal gives a very good picture 3 ft. 6 in. by 2 ft. 6 in. In its present form it is more suitable for entertainment use than for school use, as it is essential

that the lantern used for moving pictures in school should also be fitted for slides, and this pattern is not so fitted.

THERE seems an impression abroad that moving pictures will supersede slides completely. This idea is quite wrong, and is based on an erroneous conception of the function and possibilities of the lantern. It seems to be assumed that the kinematograph is to be used so as to teach geography or science "without tears"; but it is not because the lesson is to be turned into play, but because it allows work to be done more efficiently, that it pays to introduce the instrument. One may obtain general effects in a country by a rapid rush through in a train, but for purposes of study one must go to carefully selected spots and look carefully and critically at what is to be seen. The kinematograph gives the hurried work with general effects—very valuable in the right place if not overdone—but the slide has to be used for careful study. It is quite true that one may stop a kinematograph if it is fitted with a heat filter, and the class may analyse a particular picture of a series, but there must always be many single pictures which are most useful for teaching purposes, and have not been, and cannot be, kinematographed. Further, the lantern is extremely useful in showing many maps and diagrams which must of necessity remain on the screen for some considerable time.

ON November 15th, at Caxton Hall, Westminster, M. Jaques-Dalcroze gave a lecture on Eurhythmics, illustrated by six of his pupils. He claims that as rhythmical movements of the body have exerted a beneficial influence on the intellectual development of mentally deficient children, they may not unreasonably be expected to do so in the case of the normal. He uses music, in which there are "so many natural and ingenious combinations of time values, and an infinite number of rhythmic models for physical movements." The exercises are based on two ideas:— (1) Time is indicated by arm and head movements; (2) the actual notes, their length, grouping, &c., are shown by movements of the lower limbs. The illustrations, no fewer than fourteen in kind, were admirably given by the pupils, and included exercises in the development of mental response, mental hearing, concentration, realisation of time and rhythm, development of independent control of the limbs, compound rhythms, and ear training. The lecture, arranged for by the Music Teachers' Association, demonstrated very clearly the great help such a course would be to the musical student. Many musical difficulties which beset the average individual seemed to have vanished. This was especially noticeable when the pupils illustrated cross-rhythms, showing most convincingly their conceptions of each were quite independent. In reading at sight they displayed remarkable power, and also in memorising. A most beautiful "rhythmic" illustration of a Bach fugue closed the lecture. A notable feature of the pupils' performance was its naturalness; nothing was exaggerated. We understand that further demonstrations will be given.

TEACHERS of history in our secondary schools have of late years formed themselves into associations for

the discussion of questions bearing on that subject, and the movement has developed an organ, a quarterly magazine (1s. each number) called *History*, the fourth number of which has just reached us. It contains "notes and comments on recent events in the historical world," as well as papers on various topics, some of which have been read at meetings of the various branches of the associations. It looks promising, and we wish that more teachers would join these associations and subscribe to this magazine. There would then perhaps be better history teaching than is evidenced by some of the results shown at public examinations. The magazine is published by Mr. H. F. Johnson, 44 Fleet Street, E.C.

IN its November issue *The English Review* continues the interesting series of educational articles to which reference has been made already in these columns. Mr. S. M. Murray writes on higher education in Scotland, and claims "that in spite of the hampering traditions of a great educational past, traditions which are both a stimulus towards action and a warning not to meddle too lightly with what was good enough for our forefathers, the educational system now obtaining in Scotland respects the past and satisfies present requirements." Mr. Murray thinks that it is largely because school games do not figure so prominently in Scotland as in England that Scottish secondary education is so much more efficient. The aims and ideals of English public schools are, he maintains, in quite wrong perspective, and as an inevitable consequence harm is being done to those who cannot protect themselves. Education in Scotland is taken seriously, and until the parents of English public-school boys view the work of schools and colleges in the same earnest way as Scottish parents it is useless to expect any drastic changes in the English public-school system.

SCOTTISH.

THE report for the year 1912 by Sir John Struthers on secondary education in Scotland is a singularly fascinating document. The recent criticisms directed from all sides against the policy of the Department in regard to rural schools have evoked a stirring reply, in which the Department does not play merely the part of defendant, but carries the war into the enemy's camp. Sir John Struthers makes out a strong case for his claim that "a very much larger number of pupils drawn from a very much larger number of primary schools now enjoy the opportunity of profiting by secondary education than ever was the case before, and, further, that the secondary education to which they have access is much more complete and systematic." No one in close touch with Scottish education for the past twenty years will be disposed to challenge this proposition. The facilities for higher education were never so great as they are to-day, and the organisation of it was never before so perfect, but the charge against the Department is that the very perfection and symmetry of the system bears hardly on the poorest section of the community. This class formerly obtained a certain measure of higher education at their own doors. Now they may obtain

an infinitely better education in a centre twenty or thirty miles away. But then it is utterly impossible for them to get there, so that, so far as they are concerned, there might as well be no provision at all made for their higher education. As Emerson says, "the value of fire is to have a little on one's own hearth, not to know there is a superabundance in a volcano hundreds of miles away." The Department should understand that no criticism is directed against the establishment of central schools, which are the glory of the educational system. All that is asked is that the plain facts of the situation be realised and provision made for the poor but able youths who are unable to attend remote centres.

THE report shows that the total number of intermediate certificates awarded this year was 4,761, a decrease of thirty-six as compared with 1911. The number of presentations for the full leaving certificate was larger than it had ever been before, and the percentage of passes rose from 60 to 78 per cent. Altogether 1,711 certificates were issued testifying to the successful completion of a full course of secondary education. The detailed criticisms of the weaknesses revealed by the examinations in the different subjects will amply repay the careful study of all teachers interested. They bring together a collection of "ascertained errors" which, if borne in mind throughout the year, would speedily be eliminated, although possibly a new series would be found to take their place. The whole of this part of the report is one of the best books of method that could be put into the hands of young teachers.

THE annual meeting of the Secondary Education Association was held in St. Andrew's University under the presidency of Dr. John G. Kerr, Glasgow. Principal Sir James Donaldson, on behalf of the University, welcomed the association, and expressed the belief that the universities might derive considerable benefit from interchange of opinion with secondary-school teachers. The president, in the course of his address, entered a plea for the creation of a central council of teachers to act in an advisory capacity to the Education Department, and entered a *caveat* against the tendency observable in all departments of school work "to kindergartnerise" the subjects. Prof. Darroch, speaking to a motion asking that a degree in education be established, said that the University of Edinburgh was favourable to the proposal provided it could be shown that the general body of teachers desired such a degree, and that it would contribute to the efficiency of education in Scotland.

THE first annual meeting of the Historical Association of Scotland was held in the University, Glasgow. Prof. Lodge, Edinburgh, presided over a large attendance. The report of the secretary, Mr. W. C. A. Ross, showed that the association, though still in its infancy, was in a strong and flourishing position. Branch associations had already been formed in Edinburgh, Glasgow, and Aberdeen, while in the Borders, Inverness, and Dumfries steps had been taken to form similar local bodies. Thanks to the generosity of Lord Rosebery, who contributed £10, and of other

members who presented books, a small but useful library had been formed for the use of members.

A DISCUSSION of "The Use of Geography in the Teaching of History" was introduced by Mr. W. M. Mackenzie, Glasgow, in a thoughtful paper, which was almost embarrassing in its wealth of illustrations. The general conclusion arrived at was that while geography shed much light upon the facts of history, historians should not be too ready to accept the hasty deductions of geographers who had not made themselves acquainted with the facts of history. At the afternoon sederunt Prof. Hearnshaw gave an address on the teaching of history in schools. Up to ten years of age he thought the aim should be to rouse the imagination and awaken interest. For this purpose it did not matter whether the stories were true or false. They must have life and action. From ten to fifteen, attention should be concentrated on the imparting of information. In these years, the local, national, and imperial history in its broad outlines should be firmly embedded in the minds of the pupils. From fifteen to eighteen years of age they could dwell more on the practical issues bearing on social problems.

AN unfortunate dispute has arisen between the affiliated Colleges of St. Andrews and Dundee as to their respective financial rights. Their spheres were supposed to have been defined some sixteen years ago, when their long-standing dispute was understood to be composed for all time to come. But new grounds of quarrel have arisen, and St. Andrews has claimed and asserted its right to collect and apply the fees of Dundee students. The Dundee authorities have lodged a formal protest, and have intimated that they will take legal proceedings to have their rights asserted. It is hoped, however, that wiser counsels will prevail, and that some *modus vivendi* honourable to both authorities will be found.

IRISH.

PROF. CULVERWELL is this term delivering a course of six public lectures in Trinity College, Dublin, on "The Education of Children up to Seven Years of Age, being an Account of the Montessori Method." The lectures are delivered on Thursdays at four in the afternoon, and are entitled: "General Account of the Principles underlying the Montessori Method," "The Montessori Method of Teaching Writing," "Reading and Intellectual Education," "Education of the Senses," "Discipline and Liberty," and "A General Review."

DR. CORCORAN, the professor of education in the University College, Dublin, is giving two courses of public lectures, one this term and the other next term, on "Examinations." The lectures are on Tuesday evenings at 8 p.m., and are entitled for this term, "Examinations and Education," and for next term, "The Use of Examinations as a Method in School Work."

THE Executive Committee of the Irish County Councils' General Council has considered and rejected Mr. Birrell's scheme for county council scholarships from primary to secondary schools. The reasons given

are : first, to accept the conditions would render nugatory an important agreement entered into between the Senate of the National University and a deputation from the General Council whereby the Senate agreed that Irish should be an essential subject for matriculation in the University from 1913, and the councils agreed to strike a rate in aid of university education and to found scholarships tenable in the National University on those terms; such an agreement cannot be disregarded or set aside. The close connection between the National University and the county councils is based upon the Irish Universities Act of 1908, which provides the county councils striking a university rate with representation on the governing bodies of the National University. The ratepayers have no representation on any other university in Ireland. Secondly, the committee regard it as educationally unsound to award scholarships tenable at intermediate schools to children of tender years upon the results of an examination based chiefly upon personal estimates of their natural intelligence, coupled with the provision that at the end of three years they are to have the right to county council scholarships without being subject to any control from the county councils. Thirdly, the financial provisions are unsatisfactory. For each £10,000 of free grants the councils must agree to provide £20,000. The county councils are of opinion that they could provide scholarships themselves at a cheaper rate.

MR. BIRRELL, questioned in the House of Commons, said he would be sorry if the twenty-four county councils referred to were to forfeit the grant by refusing to agree to the conditions laid down, but he had no intention of withdrawing them. He had, however, no power under the Irish Universities Act of 1908 to prevent the county councils from restricting their scholarships to the National University.

MR. BIRRELL has made no statement with regard to his intentions in reference to the grant of £40,000 to intermediate education. The Central Association of Irish School-mistresses, while welcoming the grant, suggests that the six months' notice referred to in condition two should be reduced to three months, and, in reference to condition three, urges that special care should be exercised in the constitution of the Registration Council, which should include female representatives, and should not be limited to members of the universities and of the Intermediate Board, but should also contain some secondary teachers. The association also regrets that no scheme of pensions has been proposed. The Association of Secondary Teachers, which represents the lay assistant-teachers, has published a letter which it has addressed to Mr. Birrell explaining that in its letter of September 24th it had no intention of opposing his scheme in whatever form he thought it most prudent to bring it before Parliament. The association merely wished to suggest possible improvements, and although there was some difference of opinion on the question, the large preponderance of members was in favour of the condition that a school should, in order to enjoy the grant, employ one registered lay teacher for every forty pupils.

THE Classical Association of Ireland has organised two courses of archæological lectures, one in Dublin and the other in Belfast. The Dublin lectures are taking place this autumn, and were inaugurated by Prof. Bosanquet, of Liverpool, who lectured on October 25th, on "Recent Excavations in Miletus"; the other lectures are by Miss Olive Purser, on "Ancient Art in the Service of the Dead"; by Mr. J. Thompson, on "Julius Cæsar and the Gauls"; and by Prof. Semple, on "Rome in her Great Days." The Belfast lectures are being given throughout the winter session, on November 14th by Miss O. Purser, who is repeating her Dublin lecture; on February 21st by Prof. Goligher, F.T.C.D., on "Scenes of Daily Life from Attic Vases"; on March 4th by Rev. Prof. Browne, on "Recent Excavations in Greece"; and on April 18th by Prof. R. A. Macalister, on "The Place of the Philistines in History and Civilisation."

WELSH.

At last it has been decided by the Board of Education that in the case of the headmaster of Llandysilio Church School, Menai Bridge, North Wales, the Anglesey Education Authority is not justified in paying the headmaster of a Church school on a lower scale than those in its provided schools. The authority replied that it was maintaining the school in an efficient state on the headmaster's present salary. The Board of Education, in its decision, states that it "hereby determines" that the local education authority is liable to provide for payment by way of salary to the headmaster of the above school "what is received in the Council's provided schools, on the same scale." The additional payment is to date from January 20th, 1912.

FOLLOWING on the above case, after many delays, postponements, inquiries, committees, the Cardiganshire County Council has, ungraciously, agreed to increase the salaries of the head-teachers of the Church of England schools, and to adopt a single scale for all teachers. The difference which this decision makes is as follows in the different cases : from £120 to £130; from £80 to £110; £90 to £100; £153 to £190; £92 to £110; £100 to £110; altogether making twenty-three schools. There are other cases to be considered later. Mr. Gladstone once said : "Justice delayed is justice denied." These teachers have been refused the increase for years on the ground of difference of opinion of the majority of the Education Committee from the Act which they were called upon to administer. Suddenly the majority give way, and the head-teachers of Church schools are allowed the claim. The teachers concerned, in marked contrast of spirit to the authority, agreed to accept the recommendation without claiming the arrears since the passing of the Act in 1902.

AN invitation has been received from the secretary of the Eisteddfod Committee at Pittsburg, U.S.A., where the Eisteddfod for next year is to be held, to the Barry Romilly Schools Choir to visit the United States and give a concert. It has been decided to accept the invitation. The choir of the school which won the first prize at the Colwyn Bay Eisteddfod

will give a series of concerts in order to raise the necessary funds to pay the expenses. Teachers will also go in charge of the choir, to secure that the boys shall not lose educationally by absence from school.

THERE is much competition amongst the towns of Wales for the honour of keeping the national records. Petitions are being sent to the authorities from the towns in which the university colleges are situated (Aberystwyth, Bangor, Cardiff), but, in addition, it is stated that Brecon, Carmarthen, and Swansea, in the south of Wales, and Welshpool, Ruthin, Conway, and Carnarvon, in North Wales, are bestirring themselves to have the honour allotted to them. The documents referred to as "records" are all Welsh records, which were transferred to the Record Office in London by the Public Record Office Act of 1838, where they now are under the custody of the Master of the Rolls. There can be no doubt that such records should be in the most convenient place for students, professional searchers, and public officials. The Commission on Public Records has recommended that "if retransferred to Wales, the records should be kept together in proper custody in a Record Office for Wales, in some place accessible both to English and Welsh students, close to a reference library, near one of the colleges of the University of Wales, and not too remote from the others."

CARDIFF has just celebrated the jubilee of the foundation of the Town Public Libraries. The growth of the libraries is indicated by the following figures. In 1863 there were 1,076 lending and 49 reference books; in 1873, 6,966 lending and 330 reference books; in 1910-11 43,342 lending books, and the annual recorded use of reference books on open shelves about 100,000. Books lent for home reading in 1863 were 7,717; in 1910-11 342,175. The Cardiff Education Committee has now a lending library, and the total stock is about 25,000 volumes, and the annual circulation for home reading more than 300,000 volumes.

AN INTERMEDIATE COURSE OF PHYSICS.

Intermediate Physics. By Dr. W. Watson, F.R.S. xvi+564 pp. (Longmans.) 6s. net.

THE latest text-book from the pen of Dr. Watson has been written on somewhat novel lines. It is not intended merely as an aid in the preparation for the Intermediate examination of the University of London, but rather for students in whose preliminary studies the science of physics forms a part, although the subject may be dropped subsequently in favour of more specialised courses of study. Thus the scope of the book has been made somewhat wider than that of most elementary text-books, so that the student may acquire a general knowledge of the subject.

The first section, including eleven chapters, is devoted to the general mechanical properties of matter. Perhaps it is unfortunate that more attention has not been devoted to the fundamental principles of mechanics. For instance, as an introduction to the idea of inertia, the following statement (p. 14) is not very illuminating:

"The quantity of motion or *momentum* possessed

by a moving body is proportional to the mass of the body and the velocity with which it is moving."

A slip of the pen on p. 105 may be mentioned: line 12 from the bottom should read $v = \sqrt{2gH}$ instead of $v = 2\sqrt{gH}$. The general treatment of the motion of fluids is good, and should prove very useful, especially to engineering students.

The second section, comprising five chapters (87 pages) is devoted to heat. Within this space the subject is explained clearly, although the treatment in certain cases is somewhat meagre. The advisability of introducing the study of Carnot's cycle is questionable, for a student never begins to understand this branch of thermodynamics until he applies the results to specific problems, such as the depression of the freezing-point of water due to pressure, &c.; and such problems are not mentioned.

The six chapters devoted to sound are clearly written, and give an interesting *résumé* of the more elementary portions of the subject. An error on p. 274 should, however, be corrected. In Kundt's dust tube, a *node*, and not an anti-node, occurs at the end of the vibrating rod (see Fig. 175).

Eight chapters are devoted to light, and eleven chapters to electricity and magnetism. The greatest difficulty experienced by students in the study of lenses is connected with the convention as to signs; and this difficulty can be overcome only by a rigid adherence to the convention adopted. It is therefore unfortunate that the two principal focal lengths of a lens should be taken as of similar signs (p. 317)—a convention which does not agree with that adopted elsewhere (pp. 297, 314). In connection with electricity, most students find it difficult to form a clear idea as to what is meant by the difference of potential between the ends of a conductor through which a current is flowing, and this difficulty is by no means removed by referring to the electrostatic difference of potential, as is done on p. 440. Further, the following statement (p. 440) is highly objectionable, as it implies that electricity is a mode of energy:

"The only thing the passage of which we are able to recognise, however, is energy, this energy being in the form we call electricity, but of the nature of which we are ignorant."

The book closes with short chapters on the passage of electricity through gases, radio-activity, wireless telegraphy, and thermoelectricity. These chapters are intended, apparently, to whet the student's appetite; for the twenty-one pages comprised in them would scarcely suffice to give a bare outline of one of the subjects mentioned.

TO THE HEART OF YOUTH.

(1) *Clifton School Addresses.* By Sidney T. Irwin. xxiii+220 pp. (Macmillan.) 3s. 6d. net.

(2) *Stories for Young Hearts and Minds.* By F. J. Gould. viii+298 pp. (George Allen.) 2s. 6d. net.

(3) *The Pansy Patch.* By Alice M. Chesterton. 184 pp. (Nelson.) 1s. 6d. net.

(4) *Boy Wanted.* By Nixon Waterman and Fred E. Bumby. xvi+175 pp. With 16 portraits. (Harrap.) 2s. 6d. net.

(5) *The Girl Wanted.* By Nixon Waterman and Grace Bartruse. xv+168 pp. With 16 portraits. (Harrap.) 2s. 6d. net.

(6) *Civics.* By L. J. Sparkes. 80 pp. (Headley Bros.) 1s. net.

WHATEVER Mr. Irwin may have been as a lecturer (we are told he was a first-rate conversationalist), he was certainly a most gifted writer. He was a scholarly "wordmaster," who could make the driest topics in-

teresting and even fascinating. Though delivered to the boys of Clifton College on Sunday evenings, these addresses (1) have nothing of the nature of sermons in them, unless it be their lofty idealism and subtle moral force. Such topics as "Why we learn Latin," "Why we learn Greek," "Virgil," and "Epictetus" will sufficiently indicate the scope of the essays, which are likely to be even more attractive to masters than to boys—which is saying much. There is something of permanent value about these addresses; for it would be hard to find in so small a compass a better vindication of the "humanities." A single specimen of Mr. Irwin's style must suffice. "In speaking of the failings of great men . . . all our comments should be seasoned with humanity—that is, an ever-present remembrance of our own inferiority. We may express frankly our sentiments as to the particular weakness, so long as we do not forget that the great man's failings might be doubled and our virtues trebled without making us worthy to tie his shoes."

In his volume of stories (2) Mr. F. J. Gould renders yet another valuable service to the cause of moral education. In his preface he makes the bold assertion (and his experience entitles it to weight): "I can confidently affirm that young people do not relish a tale less because it has a clear moral intention. I even believe they prefer tales of that character, so long as the narratives are rendered with dramatic vigour and genial humour, and provided that the 'moral' emerges in the act of telling rather than assumes the form of an elaborate appendix." The least we can say of Mr. Gould's charming and varied tales is that they attain to his own standard.

Miss Alice M. Chesterton is a born story-teller. Her instrument is simple Saxon speech; she is a close observer, and knows well the heart of the child. Her volume (3) will interest alike little children and those well on in their teens. The moral is never obtrusive. The sketch, "The Dinner-basket," is a perfect example of what a "moral" story should be; for in it evil and good, selfishness and unselfishness, are seen struggling for the mastery, and without a suggestion to the average child that a moral is intended at all. Miss Chesterton has the faith of the profoundest moral teachers. "We needs must love the highest when we see it."

"Boy Wanted" (4) is an admirably printed and illustrated "book of cheerful counsel," in typical American manner. As the second of the joint authors tells us, it has grown out of an American author's fondness for giving good advice to young people in the form of more or less humorous verses. But in addition to the verse there is a great deal of prose—which is not prosy. A "Roll of Honour" is illustrated with the portraits, and a brief "life," of Gladstone, Gordon, Damien, Lincoln, Stevenson, Wilberforce, and others. Apposite quotations appear on the margins of each page. In a parody of Hood's familiar poem, the boy who, through swelled head, has missed his way in life, is pictured as thus soliloquising:—

"I remember, I remember,
How slow this old world seemed;
I thought how I could 'make it hum'
With all the plans I'd schemed!
'Twas such a charming fairy-tale!
But now 'tis sorry play
To find how hard I have to work
To get three meals a day."

There are no humorous verses, and only a few serious ones, in "The Girl Wanted" (5). It is truly described as a book of friendly thoughts. There are

sixteen portraits and brief "lives" of great women, including Helen Keller, Florence Nightingale, Sister Dora, Queen Victoria, Mrs. Booth, Dorothea Beale, Elizabeth Fry, and Harriet Beecher Stowe. The "get-up" of the book is most attractive. The subjects dealt with are—Choosing the way, accomplishments, the joy of doing, everyday virtues, sunshine, a merry heart, golden habits, the chain of duty, and the purpose of life. The book has gained greatly through the work of its English joint editor. It is a most suitable gift-book for a girl.

Mr. Sparkes's little book (6) on "Civics" is well done, and deserves expansion and the addition of an index. It is intended to be taken as part of the regular history course, and its object is "to arouse an intelligent interest in the welfare of the State."

THEORY AND HISTORY OF EDUCATION.

(1) *Introduction to Experimental Education.* By Dr. R. R. Rusk. 303 pp. (Longmans.) 4s. 6d. net.

(2) *Education, a First Book.* By Prof. E. L. Thorndike. 292 pp. (New York: The Macmillan Co.) 6s. net.

(3) *An Introduction to Psychology, more especially for Teachers.* By Prof. T. Loveday and Prof. J. A. Green. 272 pp. (Clarendon Press.) 3s. 6d. net.

(4) *John Locke's Educational Writings.* Edited by J. W. Adamson. 272 pp. *Rousseau on Education.* Edited by R. L. Archer. 278 pp. *Vives and the Renaissance Education of Women.* Edited by Foster Watson. 259 pp. (Edward Arnold). Each 4s. 6d. net.

(5) *The Montessori Method.* By Maria Montessori. 377 pp. (Wm. Heinemann.) 7s. 6d. net.

(1) Dr. Rusk, in his "Introduction to Experimental Education," has sought to present in a convenient form for English readers the main results of this "new subject." He bases himself mainly upon Meumann, but has included the work of other investigators, English and foreign. For those teachers and students who desire a concise account of the experimental work that has been done upon the mental processes of children, and upon the psychology and pedagogy of the elementary subjects of instruction, Dr. Rusk has done excellent service by bringing together into one small volume the essentials of a mass of material, scattered throughout periodicals and bulky treatises. Though the book is, of course, largely a compilation, we scarcely think the writer need have forced this fact so continually upon the reader's attention; the names of his authorities, mostly unknown to fame outside a certain circle, might more frequently have been relegated to footnotes. Also, we think that the term "experimental pedagogy," though perhaps not so attractive as "experimental education," would more accurately and less ambiguously have denoted the aim of the book.

(2) Prof. Thorndike's name is well known in this country as that of a successful worker in the field of educational psychology. In this "first book," which is intended for use in normal schools, and by students whose course is necessarily brief, he has set himself the task of expounding the principles of education in a simple, untechnical way. "Ideally," he says, "a student of education should first know many facts of biology, psychology, sociology, ethics, and the other sciences of man." We are inclined to regard this attitude with doubt. Whether a student's course is to be long or short, we think there are great advantages in beginning with a simple study of principles.

based upon common knowledge, common experience, and common sense; and in gradually demonstrating the need of serious appeal to the sciences in question. For this reason we welcome Prof. Thorndike's new contribution to educational literature. It contains so many good points that we heartily commend it to the notice of lecturers in English training colleges.

(3) Still another small introduction to psychology would have been a superfluity; but an introduction intended "more especially for teachers" is a different matter, since the market is not overstocked with sound and manageable books of this class. We think that Profs. Loveday and Green were quite justified in undertaking this work, and that within its limits it is thoroughly well done. We say "within its limits," because we are not altogether satisfied with the authors' reasons for omitting the application of the methods of experimental psychology to pedagogical research. A few chapters on this part of the subject, a part with which they are well qualified to deal, would have still further distinguished their book from others available, and would, we think, have still further ensured its success. We hope the authors will speedily have the opportunity of adding a chapter or two of pedagogical applications. Meanwhile, we commend the book as a careful and interesting introduction.

(4) A series of "educational classics" is being issued by Mr. Edward Arnold, the series being under the general editorship of Prof. J. W. Adamson. Though there are very good existing editions of one or two of these classics, there can, we think, be no doubt of the wisdom of issuing a comprehensive series of the greatest books on education. The general editor strikes the right note when he lays down the evolutionary principle as that which should inspire the treatment of these old writers by his contributors, and, on the whole, though perhaps in varying degrees, they have adhered to this principle. It is of little use to regard a "classic" as a mixture of so much mere truth and falsehood, or rather of what *we* know to be such; it must rather be placed in its historical position as a link in a long chain, at one end of which stands the present. The names of the editors are a sufficient guarantee of painstaking and accurate work. The introductions are terse and well informed, the writers are allowed to speak for themselves, and the editors have been commendably sparing of annotations.

(5) Latest of the prophets comes Dr. Maria Montessori, a translation of whose "Il Metodo della Pedagogia Scientifica" appears in English under the title, "The Montessori Method." The attention which this book has attracted would in one sense justify a more lengthy notice than is here possible. The present reviewer is old enough to remember how many people were once carried off their feet by the name of Froebel, and others later by the name of Herbart. Sane disciples of these men are now ready to admit, or even to insist, that it will never do to attempt the mere transplantation into our own country of a system of ideas and devices worked out under very different conditions. In copying Froebel's "gifts" and Herbart's "formal steps," many teachers forgot that, though the spirit may give life, the letter killeth. Our Montessori enthusiasts should, we think, take warning. Here is a work full of inspiration, but surely also full of perils, if its precepts are taken in any but their most general significance. The work bears clearly the marks of the country of its origin, of the writer's predominantly medical training, and of her early interest in the mentally deficient; and the book will be misread by those who fail to make full allowance for these peculiarities. We think the writer's

remarks about methods of teaching far less important than her conception of the school as a social institution. A comparison of her "Children's Houses" with the huge infant schools of our large towns will provide the reader with food for thought. We trust that the book will be read widely, but read with judgment.

RECENT SCHOOL BOOKS AND APPARATUS.

Classics.

Isidori Hispalensis Episcopi Etymologiarum sive Originum. Libri xx. Recognovit brevique adnotatione critica instruxit W. M. Lindsay. 2 vols. Not paged. (Clarendon Press.) 5s. each cloth, 4s. 6d. paper.—Isidore, Bishop of Seville about 600, and one of the most commanding intellects of his age, wrote this book. It might almost be called a compendium or sketch of the bishop's other works, for many of their titles recall the chapters of this book. Some of the chapters are: De grammatica, where the curious may find all the technical terms of grammar and their meanings; de barbarismo; de solecismo; de schematibus; de metris; de rhetorica; de prosopopoeia (misprinted in text *prosopoeia*); de dialectica; and so on with mathematics, astronomy, medicine, law, time, the Bible, social life, man's body, natural history, the world, cities, metals, agriculture, war, shows, theatre, ships, arts and crafts! The index fills eighty-two pages. This is a storehouse of technical terms, and invaluable as a book of reference, but it is more than that. Isidore's syntax and accident may not be quite free from barbarisms and solecisms, but his Latin is transparently clear, and his definitions excellent. His account of the syllogism, the enthymeme, and other logical forms is a case in point; another is the excellent description of different kinds of voice. So with mathematics, and a number of subjects of which the present reviewer knew nothing until he was introduced to them by Isidore; he has learnt something quite definite about them, and, moreover, he has not been in the least bored. He read on and on with much satisfaction, and marked a number of things to work off on those whom it may be his duty to instruct. It is true that Isidore's knowledge is superficial; his etymologies are mad—but so were Plato's; he knows nothing of historical scholarship. But the modern scholar will not be misled by his mistakes. Once—only once!—he seems to be poking fun at his brethren: "Solecismus autem apud poetas schema dicitur, quotiens in versu necessitate metri factus invenitur." A comfort for the schoolboy; where's your schema Pindaricum now? The relationships, however, are quite obscure to us. How *patrii pater* can be *pater magnus* when *patriis pater* is *avus*, we cannot see. Surely this should be *avi frater pater magnus*. The same confusion runs through the section (ix., vi.)

Mr. Lindsay's work, in spite of his modest preface, is of real importance. It is based on first-hand study of the older MSS., and this is no trifling task, but it is made worth while by the number of quotations from ancient writers. Isidore had a catholic taste. We hope many may make his acquaintance. He is not a mere scholiast, like Pollux; he is a human being.

A School Atlas of Ancient History. Thirty-three maps printed in colours, with plans of cities in black and white, and notes on historical geography. Index to place-names. (W. and A. K. Johnston.) 2s. net.—We have not seen a school book just like this, cheap and compact, and dealing with the influence of geo-

graphy on ancient history. It should prove useful in the present state of geographical study, when teachers are coming to the view that geography must include the physical and the historical, and not be confined to the political. The physical maps of the Mediterranean area are very instructive; they show the isotherms, the rainfall, and the distribution of vine, olive, and fig. The other maps give the various ancient empires, with other information, such as the old roads in Asia Minor, all important. It must be added that the mountains might be more clearly indicated. No one could possibly understand history without having the mountain ranges clear in his mind; and the map of Greece, for example, here, as usual, looks almost flat.

English.

The Science of Etymology. By Dr. W. W. Skeat. 242 pp. (Clarendon Press.) 4s. 6d. net.—It is at once pleasant and sad to review this last work of a veteran scholar, who practically created the science of which it treats. The advance made by that science during Dr. Skeat's lifetime is happily indicated in the preface to this book. In fact, it is precisely this advance which has occasioned the writing of the present volume. The student of English to-day must have recourse to a large number of standard works in different languages, but before he can consult them with advantage he must have some previous useful information. But Dr. Skeat does not deal only with general principles; he has fascinating chapters brimful of particular instances, as, for example, that in which he treats of "false analogy," by way of caution as to the snares that await the heedless. Another chapter which will appeal to many besides the professed specialist is happily entitled "A Philological Ramble," and "is meant to illustrate some of the ways in which the various Indo-Germanic languages throw light upon each other, and to show how many really valuable lessons can be drawn from considering even a single English word from various points of view." Dr. Skeat modestly states that he here advances nothing new, but he could with equal truth have said that a great proportion of this accepted fact was first put forward and established by his own research.

Teaching Composition. By J. Eaton Feasey. x+302 pp. (Pitman.) 2s. 6d. net.—Mr. Feasey is the headmaster of the Ranmoor Council School, Sheffield, a demonstration school of the University, and his book is primarily an account of his experience in teaching composition to elementary-school children. But secondary-school teachers can learn much from the spirit of Mr. Feasey's teaching, of which the keynote is unconventional keenness. Mr. Feasey is a great believer in visualisation, and gives some very interesting results of training by that method. In fact, the whole book is alive. We venture to think, however, that the majority of the illustrations detract from the value of an excellent piece of craftsmanship.

Diaconus: Exercises in the Meaning of English. By E. E. Loane. 185 pp. (Macmillan.) 3s. 6d.—Mr. Loane offers this book as the outcome of his own form-teaching in preparing boys for London matriculation. For that purpose it seems to us extremely good. The governing idea, he tells us, is to investigate the full meaning of the passages given; analysis, paraphrase, and *précis* all come in as ancillary to that idea. The method followed is to found exercises—general, literary, and historical—upon a very varied selection of poems. The exercises are certainly carefully chosen, and reflect great credit upon Mr. Loane's judgment as an editor. But is this system of train-

ing by anthology, even if "the absolute virgin gold of song" is not deliberately excluded, as here, likely to encourage the sustained reading of English literature?

The English Language. By L. Pearsall Smith. 256 pp. (Williams and Norgate.) 1s.—When we look back upon the wearisome text-books of "English language" which have disgusted generations of students, we cannot but feel deeply grateful to Mr. Smith for this delightful volume in the Home University Library. He has succeeded in giving a fascinating description of the building up of our language in what he must have felt an absurdly restricted space, and, more wonderful still, he has introduced his readers in the most interesting way to the living science of semantics. For the moment the "history of language" is under a cloud in our schools, and rightly so, because pedantry had blighted the subject and divorced it from practice and life; but there is no boy or girl above a fourth form who will not find this little book full of interest and charm. In the schools, if nowhere else, it should have a vast sale.

Mr. A. P. Graves has struck a new note in *Welsh Poetry, Old and New* (170 pp.; Longmans; 2s. 6d.) Not only the introduction, but the pages on Welsh metres and the brief biographies are very welcome; they will do something to clear away the half-impatient ignorance of Celtic verse. We have but little on the subject which is addressed to the non-specialist; and Welsh and Irish and Gaelic writers would gain more sympathy if, like Mr. Graves, they tried to make us understand. From among the tuneful verses, which range from Taliessin to the beautiful dirge over Mr. Lloyd George's daughter, we would particularly note the song to the wind, "without flesh, without blood, without bones, without veins"; the Dying Lover, and Mair Eluned. In the "Hills of Dream" this has been done for the Gael; no doubt there is ample material for further Englishing of Welsh lyrics.

Mr. T. Robb has reprinted in *Scottish Vernacular Poetry* (111 pp.; Blackie; 6d.) a good deal that we knew and a few pieces that are unfamiliar. As the book must be intended for the Lowland Scotch pupil, we wonder that Gavin Douglas has no place; surely he deserves it if Barbour does. Indeed, the pages spent on Barbour might have given us another ballad or two—where is the Brownie of Blednoch, so dear to Dr. John Brown? But we cannot expect to find all our favourites; and Mr. Robb has given us the Cherrie and the Slae, as well as the immortal Lyke-wake Dirge. Such books as these, if read with Barnes and Fiona McLeod, will, in a good teacher's hand, inspire reverence for the dialects, and for the poets who still have audiences small but fit.

The Age of Alfred. By F. I. Snell. 257 pp. (Bell.) 3s. 6d.—This book is one of a series, but differs from the series in its inclusion of a chapter on scōp-craft, though why scōp-craft should be limited to Anglo-Saxon is not clear. Mr. Snell is very honest: he does not admire the poetry of our ancestors, and he says so. The standing epithets and the repetitions are anathema to him; but he gives an admirable account of the literature. We suppose that only a few people have penetrated to the beauty that undoubtedly lies hid in certain poems; and the opinion that there is little sense of scenery can scarcely be maintained. In the classics, in the Bible, and in Beowulf the sense is there, though it is not Wordsworthian. All the translation bits are well done, though the famous "That passed, so may this" should be "That I went through, so may I this," which is more exact and more poignant.

"The Industrial and Social History Series," which comprises *Tree Dwellers, or the Age of Fear* (127 pp.; 1s.), *Early Cave-men* (154 pp.; 1s. 3d.), and *Later Cave-men* (180 pp.; 1s. 3d.), is admirable. The interest for children in these clear pictures of primitive man is intense, and the pictures are fascinating. Miss K. E. Dopp, the writer, promises suggestions to teachers who use these books; the best suggestion is that teachers should read for themselves. A very few Americanisms need explanation; but the idea at the back of the short sentences and questions is always clear. There is room for advanced editions for older pupils, and we are glad to see a steadily growing library of elementary anthropology. Messrs. Harrap, who published "The Cave Boy" and "Days before History," are the publishers of Miss Dopp's work.

History.

The Making of Modern Europe. Vol. I., "The Dark Ages." By C. R. L. Fletcher. xi+409 pp. (Murray.) 7s. 6d. net.—We have often remarked that English members of the Christian Church are strangely ignorant of the first half of the history of the institution to which they are proud to belong, and we have wished that some one would write a book suitable for them. Mr. Fletcher has here attempted the task, as he calls it, of "tracing the fortunes of the children of the Roman Empire," and, knowing the success of at least the first two volumes of his "Introductory History of England," we thought that in this book we might find what we sought. But, in spite of Mr. Fletcher's racy style and often illuminating comment, though he brings into the field such expressions as "don't" instead of "do not," and uses terms usually classed as colloquial, the task has proved too much for him. The development of Roman governmental institutions until they broke down, the comings and goings of "barbarians," the conquests and reconquests that pass like shadows, often leaving apparently no trace, do not yield to his treatment. We have found some of these pages as dry as the ordinary manual. Has Mr. Fletcher attempted too much? He seems to be anxious to omit nothing. Would it not have been better to lighten the ship? This book of 400 pages is too much for the man who wants his history lively and interesting; is too jaunty for the serious student, who alone would want, for whatever purpose, to master the period of seven hundred years (300-1000) covered in its pages. If Mr. Fletcher would write a book in which he would be confined to some 250 small pages, and suppress all that is not necessary for the ordinary man's understanding of the essentials of the great change, the result would be something of the kind that is wanted.

Historical Portraits, 1600-1700. 328 pp. (Clarendon Press.) 10s. 6d. net.—This is a companion volume to that which we noticed of sixteenth-century portraits some time ago, and is of the same excellent character. The portraits have been chosen by Mr. Emery Walker from various sources, authenticity, or as great an approach to it as was possible, having been the leading motive. The introduction, a good account of seventeenth-century schools of portraiture, has been written by Mr. C. F. Bell, and Messrs. H. B. Butler and C. R. L. Fletcher, of All Souls', have contributed the lives of those whose portraits are presented, in a series of short sketches in which they have maintained, in a difficult period, impartiality in politics and a sympathetic treatment of each of their subjects in turn. The book is primarily one for the drawing-room, but it is too good to be left to that limbo of unread books. Schools that can afford it should let their elder scholars handle it, even at the cost of spoiling its pristine beauty.

Britain in the Tropics. By A. W. Tilby. viii+452 pp. (Constable.) 6s. net.—This is the fourth volume in Mr. Tilby's work, "The English People Overseas," the previous volumes of which we have already noticed. In the same easy, pleasant style as the others, it treats in succession of the West Indies, of Africa, and of Asia (excepting India, which has been dealt with in a previous volume). The description of the West Indies is very good; indeed, we do not remember to have seen, in books of this kind, such a clear account of the topography of the islands. The "book" on Africa contains a chapter on the slave trade. It deals with the condition of things in internal Africa, and with slavery in America. It is not quite clear on pp. 89 (footnote) and 102 what was the attitude of the American colonies towards the question. Throughout the story, especially apropos of Gordon and the Sudan, and of Rajah Brooke of Borneo, there runs a thread of abuse of the home Government which breaks out, in the "book" which completes the volume, into an account of Little Englandism and its faults. What is said is all true, and certainly agrees with the present orthodox theory of the Empire, but we feel that the whole truth is not all told. The defects of the modern theory are suppressed, while those of that which it has superseded are "rubbed in" apparently with some passion. The episode of Gordon is told to the disadvantage of Gladstone, and still more of Granville, while the character of Gordon as given by Cromer in his book on modern Egypt is omitted. The fiery character of Brooke of Borneo is mentioned in other connections, but it is not brought in apropos of the opposition to him in his early years by Cobden and the Manchester school in general. In spite of what we venture to regard as these blemishes, however, the book is well worth reading and keeping on our shelves.

Five Reprints. *The Life of Wellington.* By W. H. Maxwell. 240 pp. (Frowde.) 6d. net. *The Life of Nelson.* By G. Callender. xxxviii+154 pp. (Longmans.) 1s. 6d. *France under Richelieu and Colbert.* By J. H. Bridges. xiv+164 pp. (Macmillan.) 2s. 6d. net. *War-Pictures from Clarendon.* Edited by R. J. Mackenzie. 276 pp. (Clarendon Press.) 2s. 6d. net. *Four Lectures on the English Revolution.* By T. H. Green. vi+88 pp. (Longmans.) 1s. net.—Here are five books which the publishers have thought it worth reprinting. The first is a *Life of Wellington*, written by a soldier in 1839, and reprinted by Mr. Herbert Strang, with a brief prefatory note, but no further comment. The nature of the book is obvious; it is a soldier's story, interesting to our young people. The second is Mr. Callender's "Life of Nelson," reprinted from his volumes on sea-captains, reviewed already in these columns, and now provided with charts and text, fully explanatory of all the naval and ship terms used in Nelson's day, so that the young reader who cares to know will find here all that is necessary to understand Nelson's seamanship. The "Pictures from Clarendon" are extracts, not always mere fighting, from Clarendon's great history, with a dozen portraits of his heroes and anti-heroes, and with notes. The other two are reprints of lectures delivered, Mr. Bridges's in 1866, and Prof. Green's, though no date is given, yet probably about the same time. They are both worth reading, both by those who merely wish to learn of the periods treated (that of Prof. Green's is the Puritan Revolution), and by those who would be interested to learn the political and historical ideas of the mid-Victorian age.

XVIII^e Siècle, Révolution, Empire. By A. Malet. 752 pp. (Hachette.) 4 francs.—This is a text-book of

European history from 1715 to 1815, written for the upper classes in French schools. We notice it here to direct attention to its illustrations. They are abundant and varied, and—a feature which we wish our publishers would imitate—they are accompanied with explanations both of the pictures and of the subjects thereof. Thus they are made an integral part of the book, not, as so often, merely detached pieces, useless because not brought into connection with the text.

Mathematics.

Non-Euclidean Geometry. By Roberto Bonola. Translated, with additions, by H. S. Carslaw. xii + 268 pp. (Open Court Publishing Company.) 2 dollars net.—Professor Carslaw has done good service to English-speaking mathematicians and teachers in rendering easily accessible the late Prof. Bonola's critical and historical study of the development of non-Euclidean geometry. The theory of parallels has always been recognised as one beset with unusual difficulty. Even the earliest commentators held that Euclid's parallel postulate was not sufficiently obvious to be accepted without proof, and many attempts were made to deduce it from other propositions. Other equivalent axioms were proposed, but none show any superiority to Euclid's. The modern period of criticism and discovery was initiated by Saccheri (1733), who, assuming Euclid's axiom to be false, hoped to arrive at some result contradictory to Euclid's other assumptions. He believed, but wrongly, that he had succeeded in his quest, but incidentally he obtained many of the results afterwards published by Lobatchewsky and Bolyai. An excellent critical summary of the work of Saccheri and of his immediate successors is contained in the second chapter of the book. In the third and fourth chapters will be found a very clear and adequate account of the researches of Gauss, Lobatchewsky, and Bolyai, to whom is due the definite establishment of non-Euclidean geometry. As the methods employed in their investigations lie within the field of elementary mathematics, the perusal of these chapters will not be found to present any special difficulty to the ordinary reader. The last chapter gives a rapid summary of some of the later developments in the direction of differential geometry and projective geometry, the work of Riemann being more particularly described. There are five appendices, of which the most interesting are the fourth, in which the independence of projective geometry from the parallel axiom is demonstrated, and the fifth, due to Prof. Carslaw, in which an elementary demonstration, based upon the properties of orthogonal circles, of the impossibility of proving the parallel axiom is given. We have only to add that the translator's thorough knowledge of the subject has enabled him to produce a version entirely free from those awkward turns of phraseology which often mar translations.

Analytical Geometry. By C. O. Tuckey and W. A. Naylor. xiv + 367 pp. (Cambridge University Press.) 5s. net.—Messrs. Tuckey and Naylor are to be congratulated on producing a book which seems well calculated to make analytical geometry interesting to the average student. Hitherto writers have catered too exclusively for the candidate for mathematical honours, and general principles are followed by such a mass of non-essential detail that the boy who has to study the subject as subsidiary to physics or engineering soon becomes bewildered and fatigued. The work before us contains the elements of both plane and solid analytical geometry, the methods of the calculus are used in finding tangents, and although to the conic sections is assigned the place of honour, some other well-known plane curves are introduced. The

examples constitute not the least interesting feature of the work, and help to relate the subject to other branches of mathematics. We notice exercises on statics, linkages, the trisection of an angle by means of conics, and the solution of equations. The book should prove useful, especially to Army candidates, and we are sure that its merits will ensure its adoption in many schools.

Practical Geometry and Graphics. By D. A. Low. viii + 448 pp. (Longmans.) 7s. 6d. net.—This substantial volume provides a fairly complete course of instruction in practical geometry for technical students. The drawing of curves from their geometrical definitions or their equations, vector geometry, graphic statics, and the numerous problems which come under the head of descriptive geometry are treated in a very lucid and complete manner. The numerous well-executed diagrams should greatly facilitate the comprehension of the methods employed. The value of graphics to the engineer is undoubted. It often leads rapidly and easily to the solution of problems when an analytical method would be tedious and difficult. Such, for example, are those in which a method of trial and error is the only practicable one, and here without question a graphical solution is much superior to numerical approximation, and is as accurate as any engineer could desire. At the same time a too exclusive dependence upon graphical methods is a mistake, and the best engineer is one who employs a judicious combination of analysis and drawing. For this reason we regard some of the matter included in the earlier chapters of the book as of doubtful utility, but in all other respects the book is excellent and worthy of a place in every engineer's library. The exercises, which number more than 700, add greatly to the value of the work as a text-book for students.

Science and Technology.

MESSRS. FLATTERS AND GARNETT, Ltd., 32 Dover Street, Manchester, have issued a new *Catalogue of Lantern Slides* (136 pp.; 4d. post free), which merits the attention of teachers and lecturers. Among the subjects illustrated are zoology, botany, geology, astronomy, physical geography, travel, &c., the slides in each section being so classified that any desired illustration is found easily. The selection shows—perhaps as much by what is omitted as by what is included—that the firm understands the needs of teachers who are alive to the possibilities of serious work with the lantern. Among the biological slides, the photographic series illustrating British birds, the British flora and British plant-associations, may be mentioned as specially valuable for general school work in nature-study; while the photomicrograms of plant structure will be no less helpful to more advanced students. The requirements of geography pupils are also met very fully. Almost all the slides listed may be hired on very reasonable terms. Some two dozen assorted plain and hand-painted slides submitted to us were all of high technical and artistic quality, and showed the points of scientific interest. Messrs. Flatters and Garnett also specialise in a type of despatch-box which travelling lecturers will do well to examine, since it possesses a number of useful contrivances for facilitating the packing and safe carriage of lantern slides.

Lessons from Nature's Workshop. By William J. Claxton. 192 pp. (Harrap.) 1s.—Any method of teaching which is successful in making children open-eyed observers of the living things about them, whether in the animal or vegetable kingdoms, deserves

some praise. In attaining this object, books may take a very useful part; but there is always a danger that the young student may become content to read about nature instead of becoming anxious to study natural objects at first hand. Mr. Claxton writes in an interesting manner likely to arrest a child's attention, and his pictures, though too small, are helpful; but he is too anxious about "the higher or moral side of nature study." It would have been better, too, to lay greater stress on the need for individual study in "nature's workshop" itself.

Modern Microscopy. By M. I. Cross and Martin J. Cole. xviii+325 pp. (Baillière, Tindall and Cox.) 6s. net.—This edition, the fourth, brings up to date a handbook of proved value to students and beginners. With commendable simplicity it gives all the information which an amateur is likely to require upon the microscope and its accessories, and the best methods of preparing and mounting objects. Finally, it contains a series of short articles by specialists in various branches of the work. It is well illustrated, and may be recommended with confidence.

EDUCATIONAL BOOKS PUBLISHED DURING OCTOBER, 1912.

Modern Languages.

Alphonse Daudet, "Lettres de mon Moulin, Contes Choisis." (Little French Classics.) Edited by E. J. A. Groves. 48 pp. (Blackie.) 4d.

Alphonse Daudet, "Lettres de mon Moulin." (Oxford Modern French Series.) Edited by H. C. Bradley and E. V. Rien. 128 pp. (Clarendon Press.) 2s. 6d.

"First Book in German." By E. W. Bagster-Collins. 352 pp.+16 plates. (Macmillan.) 6s.

"Wieland der Schmied." Adapted from the German Saga." Edited by A. E. Wilson. 72 pp. (Oxford University Press.) 1s. 6d.

Classics.

"A First Virgil, containing Easy Selections from the Works of Virgil, with very Brief Notes." By George Yeld. 64 pp., 1s.; with vocabulary, 180 pp., 1s. 9d. (Blackie.)

"Livy." Book IX. Edited by W. B. Anderson. xxiv+276 pp. (Cambridge University Press.) 2s. 6d.

Gaius Julius Cæsar, "Gallic War." Book V. Edited by E. S. Shuckburgh. xxiv+138 pp. (Cambridge University Press.) 1s. 6d.

"New Junior Latin Course." By J. V. Thompson and L. M. Penn. 408 pp. (Clive.) 3s. 6d.

"Classics and the Direct Method: An Appeal to Teachers." By W. H. S. Jones. 16 pp. (Heffer.) 6d. net.

English: Grammar, Composition, Literature.

"Browning's Teaching on Faith, Life, and Love." By the Rev. W. A. Hind. 224 pp. (George Allen.) 2s. 6d. net.

"How to Speak and Read: Being Notes on the Management of the Voice for the Use of Teachers, Preachers, and Public Speakers Generally." By J. Bruce Alston. 120 pp. (Blackie.) 2s. net.

"The New English Spelling and Dictation Book." By T. Bennett. 107 pp. (Blackie.) 1s.

"The New English Spelling Book." (For Scholars' Use.) By T. Bennett. 30 pp. (Blackie.) 4d.

Morris, "The Writing on the Image, and other Passages from 'The Earthly Paradise.'" (Blackie's Smaller English Classics.) Edited by Edith Fry. 32 pp. (Blackie.) Paper 2d., cloth 3d.

"History of English Literature from 'Beowulf' to Swinburne." By Andrew Lang. (Longmans.) 6s. Also issued in five parts as follows:—Part I., "Early and Mediæval Literature." 1s. 4d. Part II., "Chaucer to Shakespeare." 1s. 4d. Part III., "Elizabethan and Jacobean Literature." 1s. 4d. Part IV., "Eighteenth Century Literature." 1s. 4d. Part V., "Nineteenth Century Literature." 1s. 6d.

"Thesaurus of English Words and Phrases." By Dr. Peter M. Roget. Enlarged and improved, partly from the Author's Notes, and with a full Index, by J. L. Roget (1879). New Edition. Revised by S. R. Roget (1911). (Longmans.) 2s. 6d. net.

"Studies in English Idiom." By G. Brackenbury. 188 pp. (Macmillan.) 1s. 3d. net.

"A Modern Dictionary of the English Language, with Australasian Supplement." 808 pp. (Macmillan.) 2s.

The Children's Classics—"Three Tales from Andersen." (Adapted.) 48 pp. Sewed 2½d., cloth 3½d. "Sylvie and Bruno." By Lewis Carroll. (Adapted.) 80 pp. Sewed 3½d., cloth 4½d. (Macmillan.)

The Tudor Shakespeare—"The Winter's Tale." Edited by L. J. Wylie. 184 pp. "Richard II." Edited by H. Craig. 176 pp. (Macmillan.) 1s. net each vol.

"Thought-Building in Composition." By R. W. Neal. 180 pp. (Macmillan.) 3s. 6d. net.

Shakespeare, "The Merchant of Venice." Edited, with Introduction and Notes, by H. M. Percival. 229 pp. (Oxford University Press.) 2s. net.

Kingsley, "Hereward the Wake." (Oxford Edition of Standard Authors.) 456 pp. (Oxford University Press.) From 1s. 6d. net.

"The Complete Works of Geoffrey Chaucer." (Oxford Edition of Standard Authors.) Edited by Rev. W. W. Skeat. 906 pp. (Oxford University Press.) From 1s. 6d. net.

Poetical Works of Robert Bridges. (Oxford Poets and Oxford Edition of Standard Authors.) 480 pp. (Oxford University Press.) From 1s. 6d. net.

Browning, "The Ring and the Book." Introduction by Edward Dowden. (Oxford Poets and Oxford Edition of Standard Authors.) 522 pp. (Oxford University Press.) From 1s. 6d. net.

"The Poetical Works of Samuel Taylor Coleridge." (Oxford Poets and Oxford Edition of Standard Authors.) Edited by E. H. Coleridge. 1,094 pp. (Oxford University Press.) From 1s. 6d. net.

"Poems of James Russell Lowell." (Oxford Poets and Oxford Edition of Standard Authors.) 636 pp. (Oxford University Press.) From 1s. 6d. net.

History.

"Boulogne to Austerlitz." (Special Campaign Series.) By Col. R. G. Burton. 112 pp. (George Allen.) 5s. net.

"Teacher's Handbook to the Use of Anderson and Marsden's 'Short History of the British Empire.'" By P. C. Wren. 152 pp. (Macmillan.) 2s. 8d. net.

"Stories from Scottish History." By E. M. Wilmot-Buxton. viii+158 pp. (Methuen.) 1s. 6d.

"The Lascarids of Nicea: The Story of an Empire in Exile." By Alice Gardner. xiv+332 pp. (Methuen.) 7s. 6d. net.

"An Outline of British History." By Arthur D. Innes. In two parts. Part I., Earliest Times to 1763, 232 pp. 2s. 6d. Part II., 1760 to 1910. 166 pp. 2s. (Rivingtons.)

Geography.

"Visual Geography: A Practical Pictorial Method of Teaching Introductory Geography." Containing twenty-three page outline pictures for colouring. By Agnes Nightingale. (Black.) 6d.

- "Map Projections." By Arthur R. Hinkes. xii+126 pp. (Cambridge University Press.) 5s. net.
 Cambridge County Geographies—"Forfarshire." By Easton S. Valentine. viii+160 pp. (Cambridge University Press.) 1s. 6d.
 "A School Economic Atlas." Second Edition. By J. G. Bartholomew. With introduction by Prof. L. W. Lyde. 86 pp. and 180 coloured maps. (Clarendon Press.) 2s. 6d. net.
 "A Geography of the British Empire." By A. J. Herbertson and R. L. Thompson. 256 pp. (Clarendon Press.) 2s. 6d.
 "Geography of South America." By G. C. Fry. 30 pp. (Clive.) 8d.
 "A Regional Geography of Asia." By T. W. F. Parkinson. 256 pp. (Collins.) 1s. 9d.
 "An Atlas of Practical Geography." By T. W. F. Parkinson. 29 pp. (Collins.) 6d. net.

Mathematics.

- "Memoranda Mathematica, with Paterson's Five-Figure Logarithmic and Trigonometrical Tables." By W. P. Workman. 280 pp. (Clarendon Press.) 5s. net.
 "Practical Geometry and Graphics." By Prof. David Allan Low. (Longmans.) 7s. 6d. net.
 "Differential and Integral Calculus: An Introductory Course for Colleges and Engineering Schools." By Prof. Lorrain Hulburt. (Longmans.) 9s.
 "Theoretical and Practical Mechanics and Physics." Second Edition. By A. H. Mackenzie and A. Forster. 230 pp. (Macmillan.) 1s. 6d.
 "Macmillan's Reform Arithmetic." Book VII. By P. Wilkinson and F. W. Cook. 64 pp. (Macmillan.) Sewed 4d., cloth 5d.
 "Macmillan's Reform Arithmetic." Girls' Edition. Book V. By P. Wilkinson and F. W. Cook. 48 pp. (Macmillan.) Sewed 3d., cloth 4d.
 "A New Geometry." Part I. By S. Barnard and J. M. Child. 236 pp. (Macmillan.) 1s. 6d.
 "The Calculus." By E. W. Davis and W. C. Brenke. 470 pp. (Macmillan.) 8s. 6d. net.

Science and Technology.

- "The Student's Human Physiology." By Ernest Evans. 320 pp. (George Allen.) 3s. 6d. net.
 "Hygiene for Teachers." By R. A. Rowlands. xii+356 pp. (Edward Arnold.) 3s. 6d. net.
 "Electricity and its Practical Applications." By Prof. Magnus Maclean. 492 pp. (Blackie.) 10s. 6d. net.
 "Safety in Coal Mines: A Text-Book of Fundamental Principles for Firemen and other Workers in Mines." By Prof. Daniel Burns. 158 pp. (Blackie.) 2s. 6d. net.
 "The Preparation of Organic Compounds." By E. de Barry Barnett. 310 pp. (Churchill.) 8s. 6d. net.
 "Fattv Foods, their Practical Examination." By E. R. Bolton and Cecil Revis. 370 pp. (Churchill.) 10s. 6d. net.
 "Electricity and Magnetism for Advanced Students." By Sydnev G. Starling. (Longmans.) 7s. 6d. net.
 "The Theory of Light." Fourth Edition. Edited by W. E. Thrift. By Thomas Preston. 642 pp. (Macmillan.) 15s. net.
 "A Class Book of Physics." Part III. "Heat." By Prof. R. A. Gregory and H. E. Hadley. 94 pp. (Macmillan.) 1s.
 "Introduction to Mineralogy for Chinese Students." By A. W. Hensell. 98 pp. (Macmillan.) 3s. net.
 "A Laboratory Manual in Chemistry." By W. C. Morgan and J. A. Lyman. 156 pp. (Macmillan.) 1s. 8d. net.

- "A College Text-book on Quantitative Analysis." By H. R. Moody. 172 pp. (Macmillan.) 5s. 6d. net.
 "A Handbook of Physics." By W. H. White. xvi+668 pp. (Methuen.) 7s. 6d.

Pedagogy.

- Sigmund Engel, "The Elements of Child Protection." Translated by Dr. Eden Paul. 288 pp. (George Allen.) 15s. net.
 "A History of Psychology." (Library of Philosophy.) By Dr. G. S. Brett. 408 pp. (George Allen.) 10s. 6d. net.
 Arnold's Educational Classics—"Pestalozzi's Educational Writings." Edited by Prof. J. A. Green. (Edward Arnold.) 4s. 6d. net.
 "The Fundamentals of Psychology." By B. Dumville. 394 pp. (Clive.) 4s. 6d.
 "Peter Ramus and the Educational Reformation of the Sixteenth Century." By F. P. Graves. 238 pp. (Macmillan.) 5s. 6d. net.
 "Teaching in School and College." By W. L. Phelps. 198 pp. (Macmillan.) 4s. 6d. net.

Miscellaneous.

- "The Hebrew Prophets for English Readers." Vol IV. By F. H. Woods and F. E. Powell. 280 pp. (Clarendon Press.) 2s. 6d. net.
 "Lessons from Nature's Workshop." By W. J. Claxton. (Harrap.) 1s. 6d. net.
 "The Story of Wellington." By F. H. B. Wheeler. 256 pp. (Harrap.) 3s. 6d. net.
 "Stories to Tell to Children." By Sara Cone Bryant. 240 pp. (Harrap.) 5s. net.
 "Parsifal, or the Legend of the Holy Grail." By T. W. Rolleston. 192 pp. (Harrap.) 15s. net.
 "All Shakespeare's Tales." By Winston Stokes. (Harrap.) 7s. 6d. net.
 "The Story of Newnham College." By I. B. J. Sollas. 24 pp. (Heffer.) 6d. net.
 Longmans' Natural History Wall Pictures—"British Mammals." By Archibald Thorburn. Unframed, 2s. 6d. net; in frame, 7s. 6d. net; set of twelve pictures in portfolio, 35s. net.
 "Finger Plays." Words by Nora Semmens and Ethel M. Lord; music by A. R. Gosman. 40 pp. (McDougall.) 2s. net.
 "The Life of Christ." By Rev. F. M. Blakiston. 382 pp. (National Society.) 2s. 6d. net.
 "Builders of the Church and Prayer Book." By K. L. M. Rowton. 334 pp. (National Society.) 2s. net.
 "The Way of Worship." By Hetty Lee. 320 pp. (National Society.) 2s. net.
 "The Church's Year in the Sunday Kindergarten." By Sybil Longman. 328 pp. (National Society.) 2s. net.
 "Old Testament History. A Continuous Narrative from the Creation to the Time of Christ." With Notes, Maps, and Plans. By the Rev. A. R. Whitham. 438 pp. (Rivington.) 4s. 6d. Also in two parts, 2s. 6d. each. Part I., "The Creation to the Death of Saul." Part II., "King David to the Time of Christ."
 "Simple Health Rules and Health Exercises for Busy Women and Girls." By Maud Curwen. 48 pp. and 11 pp. of photographs. (Simpkin, Marshall, Hamilton, Kent and Co., Ltd.) 1s. net.
 "Three Pieces for the Violin, Violoncello, and Piano." By Franklin Harvey. The String Parts edited by Alfred Gibson. (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.

The Psychology of Reading.

SOME light on the psychology of reading and its bearing on the "Look and Say" method of learning, so ably dealt with in the papers reproduced in the November issue of THE SCHOOL WORLD, is shed by the experience of non-alphabetic languages. Chinese and Japanese, which are mainly ideographic, have been regarded by Europeans as the *ne plus ultra* of difficult languages, simply because they employ many thousands of distinct characters. If this objection were valid, Oriental children should require a much longer time in which to learn to read their own language than European. Yet one may see Japanese children—I will not consider the Chinese, whose general education is backward—reading with at least the same degree of facility as English children of corresponding years. The obvious inference is that they learn to read by the "Look and Say" method.

Miss Foxley cites the teaching of word-wholes to children by means of labels attached to objects the names of which they bear. Now it is evident that single distinctive characters representing the names of objects will make an even more vivid impression on the mind of a child than so many groups of smaller characters of varying length, especially if the former have some resemblance, even remote, to the objects themselves. A glance at the following line of Chinese characters (used alike in China and Japan), compared with the English words giving their meanings, will make this clear:



tree *door* *mouth* *man* *bird*

Of course, not all the characters are so simple as the above, but they are all based on a few elements of a fundamentally pictorial nature. The Japanese use phonetic syllabic signs for connective words, it is true, but the fact remains that the written language as a whole is ideographic, and can be acquired only on "Look and Say" principles. In adopting the "Look and Say" method in English, then, we are treating the language as ideographic. My own view is that we all do this in reading so soon as we leave the realm of words which we hear sounded every day, and that though we mentally pronounce the words as we read, it is the visualised conception, or the memory of the written word, that predominates in evoking the idea in our minds. How much we depend on the familiar form of the words is evident from the difficulty encountered in reading shorthand, while as further examples I may instance, for those who may be familiar with the originals, the reading of romanised transliterations of, say, Greek, Russian, or Oriental languages on the one hand, and English and German in the garb of Hebrew characters (in Yiddish) on the other. The explanation is, of course, that the form which is most familiar to us, whether the spoken or written word, whether in our own or a foreign language, whether in roman or other script, is that which plays the principal part in arousing the idea conveyed.

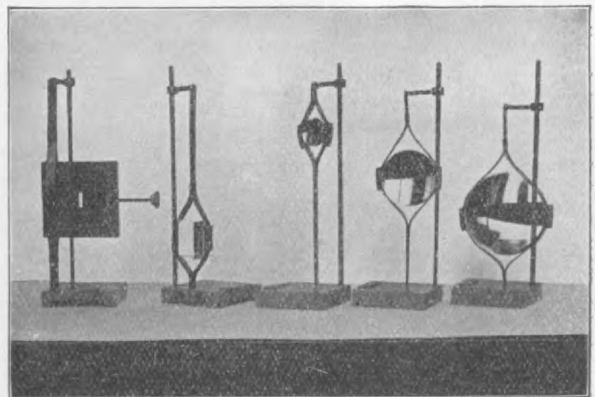
W. J. JARVIS.

Apparatus for Supporting Lenses, Mirrors, Prisms, and Screens.

MANY simple forms of optical bench have been devised for use in school laboratories, where the experiments performed do not, as a rule, demand any great elaboration in the various parts of the apparatus. One looks for ease of manipulation combined with simplicity of construction and a certain degree of accuracy in use. At the same time, the cost must be small. It takes the veriest beginner but a short time to discover that the holders employed to support lenses, mirrors, and screens are frequently lacking in adaptability. The stock of lenses and mirrors in a laboratory has, in most cases, been made up at different times and from different sources, with the result that uniformity of diameter is very unlikely. A satisfactory holder, therefore, must be adapted to grip discs of very varying diameters. An equally important requirement consists in the capacity of the holder to allow of ready adjustment in a vertical direction through a considerable range. If these desiderata can be attained without using screws or other parts which may be lost, much trouble and annoyance will be avoided.

The writer has devised a simple apparatus fulfilling the requirements which have just been enumerated, and it may be of interest to give a short description of the instrument.

Two straight thin steel strips of equal length are placed in contact, face to face, and their lower ends



are fixed permanently in a slot in a heavy cast-iron base. The upper ends of these strips are also fastened together. If an object is placed between the strips it will be gripped by them in virtue of the elasticity of the bent steel. This grip is much strengthened by the use of two sliders which move easily, but not loosely, along the compound strip. Thus, when these sliders are moved towards each other from above and below a lens which is held between the strips, the pressure of the strips on the edges of the lens is greatly increased. In order to prevent the edges of the lens or mirror from sliding on the smooth surface of the steel, a short piece of india-rubber tubing is slipped over each of the strips and the edges of the disc are thus embedded in a soft material. The size of the rubber tubing is so chosen that it slides easily on the strips and yet remains in any position in which it is placed.

In order to keep the holder free from vibration the upper end of the compound strip is attached by a short horizontal arm to a brass sleeve which slides easily on a stout vertical brass rod screwed into the iron base.

The total length of the strips is about 11 in., and

the holder is capable of gripping a disc of any size up to $4\frac{1}{2}$ in. diameter. A lens the diameter of which is 1 in. may be held anywhere between the strips through a vertical range of 7 in. The base is heavy and the strips are fixed flush with one of its edges, so that two lenses, in different holders, may be brought very nearly into contact.

The capacity of the holder for gripping an object of small diameter enables it to be used for supporting cardboard screens, metal sheets, writing paper, pins, needles, &c. A V-groove is cut in the under surface of the base, so that several holders may be aligned on a metal or wooden rod, and the essentials of a simple optical bench may be provided.

The reproduction shows an adjustable slit, a large prism, and three mirrors of greatly different diameters held in different positions in the holders. It is evident that a prism so supported is much safer than when it merely rests upon an adjustable table or a wooden block.

T. J. BAKER.

King Edward's School, Birmingham.

Right- and Left-handedness.

As headmaster of a secondary school, I have frequently to deal with boys who are "left-handed." In all cases the boy, by the time he comes under my notice, has learnt to write, more or less badly, with his right hand; in some cases he can write with either hand. Usually he is far more skilful in manual work with his left hand, and uses it almost exclusively.

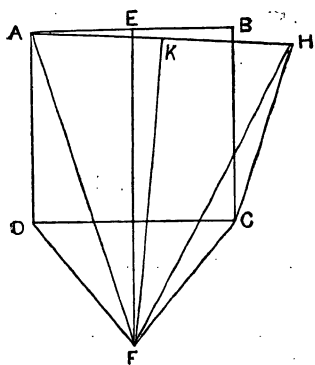
What I wish to ascertain is whether it is desirable to make such boys use the right hand exclusively in writing, and so far as possible in manual work.

Some time ago there was much advocacy of the development of ambidexterity, but there seemed real uncertainty as to the effects that might thereby be produced on mental development. That is a big question, and somewhat in the air, perhaps. My particular problem is one that must present itself to every teacher, and for which the experts should have a sufficient answer.

E. A. EDEN.

Geometrical Figures.

ON drawing the figure required for a rider I found that it apparently enabled one to prove that two triangles having the three sides respectively equal were not congruent. I do not know if it is original or not,



but several mathematicians to whom I have shown it have told me that they have not seen it before.

Construct the square ABCD.

Bisect AB at right angles by the line EF.

From C draw CH equal to a side of the square.

Join AH.

Bisect AH at right angles by the line KF.

Join FD, FA, FH, FC.

In the triangles ADF, HCF, AD, FD, AF are respectively equal to HC, FC, HF. But the angle ADF is less than the angle HCF by the angle BCH.

J. HART-SMITH.

Battersea Polytechnic Secondary School.

The External Side of the University of London.

THE report of the Royal Commission on University Education in London is now being drafted, and will be presented early in the new year. The two points

in which the public are most interested are the questions of the site and of the continuance of the external side. The former question is interesting, not only to Londoners as a whole, but especially to King's College, the buildings of which, once a part of Somerset House, are now again required for Government purposes. King's College does not wish to move until it knows where the University is going to be, so that it may secure an adjacent site. But the more vital question is that of the external side. There are strong rumours about that a majority of the Commissioners are in favour of the abolition of this historic essential of what may be called the Imperial University.

Lord Haldane, the chairman of the Commission, in his recent speeches on university topics, has indicated his sympathies with the internal type of university. We may all agree with him, but at the same time we may think there should be at least one university in the British Empire where the poor man may graduate without residence. Should this one door to culture be slammed in the face of democracy, it will be but one more proof that the people are merely cajoled into voting for a party that does not aid them to improvement. Surely a university which has had as external students such men as Lord Emmott, Lord Fletcher Moulton, Sir Joseph Larmor, M.P., Sir Swinfen Eady, Sir Forrest Fulton, Sir Oliver Lodge, Sir George Gibb, Mr. Alfred Austin, Mr. I. Zangwill, and Mr. H. G. Wells (to name only living members) can be said to have justified the continuance of the policy of not insisting on residence as an essential for a degree.

PAGANUS.

The Riccardi Press Edition of "Virgil."

WE beg to thank you for your notice of the Riccardi Press edition of "Virgil." With reference to your comment upon the names of the speakers in capitals in the Eclogues, we may perhaps be permitted to say that, at the time when this book was printed, the Riccardi fount was cut only in the one size, without "small capitals," so that we had no option but to use the large capitals. Since printing this volume, however, the new 11-point fount has been cut, and will in future be used in conjunction with the larger fount.

PHILIP LEE WARNER.

(Publisher to the Medici Society, Ltd.)

7 Grafton Street, London, W.

November 14.

The School World.

A Monthly Magazine of Educational Work and Progress.

EDITORIAL AND PUBLISHING OFFICES,
ST. MARTIN'S STREET, LONDON, W.C.

Articles contributed to "The School World" are copyright and must not be reproduced without the permission of the Editors.

Contributions and General Correspondence should be sent to the Editors.

Business Letters and Advertisements should be addressed to the Publishers.

THE SCHOOL WORLD is published on the first of each month. The price of a single copy is 6d. Annual subscription, including postage, 7s. 6d.

The Editors will be glad to consider suitable articles, which, if not accepted, will be returned when the postage is prepaid.

All contributions must be accompanied by the name and address of the author, though not necessarily for publication.

INDEX.

ARTICLES.

- Adult Reading, The Psychology of, 404
- Apparatus, Scientific, designed by Teachers, 131
- Applied Education, An Experiment in, 208
- Army Educational Certificates, 283
- Art Teaching, Memory Work in, 32
- Association of: Headmistresses, The, 264; Public School Science Masters, 67
- Athens, The History of, 113
- Belfast Superannuation Scheme, A, 64
- Bible Text-books, 349
- Botany, The New, 393
- "Boys' Books," The Standardisation of, 163
- Boys, Young, The Education of, 139
- British Association: Education at the, 364; Education at the Dundee Meeting of the, 306
- Cambridge: Histories, Two, 192; Local Examinations, 1911, Hints to Teachers from the Examiners' Reports, 182; University Local Examinations, Set Subjects for July and December, 1913, 142
- Camp, A School, in France, 134
- Celtic Myths, 232
- Certificates, School Leaving-, A System of, with special reference to Scotland, 465
- Christian Biography, Early, 111
- Classical Teaching, The History of, 110
- Co-education, Some Aspects of, 247
- Combustion—the Phlogiston Theory, 89
- Congress: The Fifth International, of Mathematicians, 416; The Second Moral Education, 419
- Continuation Schools, 136
- Correlation: of History and Geography in Lower Forms, 281; of the Teaching of Mathematics and Geography, 448
- Dietaries, School, and Home Influences, 211
- Domestic Science, The Teaching of, 434
- Ecclesiastical Terminology, 87
- Edinburgh, Vocational Training in, 373
- Education: A Cyclopædia of, 110; An Objective Standard in, 367; and Life, 433; and Public Health, 350; and the State, 46; Applied, An Experiment in, 208; at the British Association, 364; at the Dundee Meeting of the British Association, 306; General and Vocational, 371; of Young Boys, The, 139; Secondary, in London, 11; Theory and History of, 108, 472; The Psychology of, 109
- Educational: Ideals, The Growth of, 349; Research, Teachers and, 321, 376
- English: Books, Three, 314; from the Foreigner's Point of View, 287; Grammar in Public Schools, The Teaching of, 165; Literature, The Teaching of, in Public Schools, 128; Secondary Schools, Salaries in, 15; The Place of Grammar in the Teaching of, 256, 333; The Teaching of, in the High School of the United States, 81
- Entrance Examinations, 291
- Eton, Memories of, 111
- Examinations: and Inspections, 339; Entrance, 291; in Secondary Schools, The Report of the Consultative Committee on, 41; Irish Intermediate, 1913, 306; School, The Position and Value of, 26
- Extension of Knowledge, The, 312
- Eyesight and Typography, 382
- French Books on England, Recent, 164
- General and Vocational Education, 371
- Geography: and History in Elementary Education, The Value of, 248; Books, Still more, 105; Elementary, The Teaching of, 255; History and, Correlation of, in Lower Forms, 281; Mathematics and, The Correlation of the Teaching of, 448; Teaching, Schemes for, 124; The "Human Note" in, 394; The Use of Practical Exercises in the Teaching of, 214, 330
- Geometry: Elementary Formal, The Teaching of, 22; Elementary, The Use of Simple Models in the Teaching of, 91; Sequence in, The Question of, 173, 327
- German, The Oral Teaching of, 168
- Girls, The Physical Training of, 230
- Girls' Schools, Science in, 452
- Grammar, The Place of, in the Teaching of English, 256, 333
- Greek: The Question of, 44; Genius, The, 434
- Gymnastics, Swedish, for English Schools, 1
- Handwriting, Movements in, 379
- Headmistresses, The Association of, 264
- Historical: Charts and Pictures, 31; Fiction, Two Guides to, 107
- History: and Geography, Correlation of, in Lower Forms, 281; Geography and, The Value of, in Elementary Education, 248; Original Sources in the Teaching of, 294, 335; Teaching of, by means of Local Records, 57
- Holiday Course Experiment, A, 142
- Home Influences, School Dietaries and, 211
- "Human Note," The, in Geography, 394
- Ideals, Educational, The Growth of, 349
- Imperial Conference of Teachers' Associations, The, 305
- Inspections, Examinations and, 339
- Insurance Act, The, and Teachers in Secondary Schools, 241
- International Congress of Mathematicians, The Fifth, 416
- Irish: Education under Home Rule, 266; Intermediate Examinations, 1913, 306
- Kinematograph, The, in the School, 361
- Knowledge, The Extension of, 312
- Latin: Course, A Three Years', 401; Plays, An Account of some Work at the Perse School, Cambridge, 324; Teaching, Summer School for the Reform of, 423; The Aims of the Direct Method of Teaching, 446; The Use of the Dramatic Interest in, 161
- Libraries, Teachers' Reference, 15
- Life, Education and, 433
- Literature, English, The Teaching of, in Public Schools, 128
- Local: Examinations, Oxford University, Set Subjects for 1913, 25; Teachers' Views of Examiners' Reports on, 4, 7, 9, 94; Records, Teaching of History by means of, 57
- London: Secondary Education in, 11; the University of, The Home of, 45
- Lyric, The Study of the, 351
- Magazine, The School, and its Development, 97
- Mathematical: Essays, 203; Teaching, The Present Position of, 387
- Mathematicians, The Fifth International Congress of, 416
- Mathematics: in the United Kingdom, The Teaching of, 251; The Correlation of the Teaching of, and Geography, 448
- Memory: and Formal Training, 54; Work in Art Teaching, 32
- Models, The Use of Simple, in the Teaching of Elementary Geometry, 91
- Modern Language Teaching, 265
- Moral: Education Congress, The Second, 223, 419; Instruction

Lessons, 32; Tone of the School, The Methods of Raising the, 49
 Most Notable School Books of 1911, The: Modern Languages, 18; Classics, 18; English Language, Grammar, and Composition, 19; History, 19; Geography, 19; Mathematics, 20; Chemistry and Physics, 21; Natural History, 21
 Myths: Celtic, 232; in Literature, 149
 N.U.T. Conference at Hull, The, 184
 Objective Standard, An, in Education, 367
 Oral Teaching of German, The, 168
 Original Sources in the Teaching of History, 294, 335
 Out-of-Doors, School, in the Slums, 201
 Oxford: Local Examinations, 1912, Hints from the Examiners' Reports, 424; University Local Examinations, Set Subjects for 1913, 25
 Parallels and Transversals, A New Treatment of, 443
 Pensions for Teachers, 307
 Phlogiston Theory, The, 89
 Phonétique, La Salle de, 205
 Physical Training of Girls, The, 230
 Physics, An Intermediate Course of, 471
 Play, The Teaching of, 193
 Poetry, The Appeal of, to Boys and Girls, 342
 Read, How Children Learn to, 413
 Reading: Adult, The Psychology of, 404; On the Teaching of, 13; The Methods of Teaching, in the Early Stages, 408
 Registration Council, The Teachers', 135
 Rural Schools—some Criticisms and Suggestions, 244
 Salaries in English Secondary Schools, 15
 Schlussfeier: An Annual Festival of German School Life, 207
 Scholars, Schools and, 230
 Scholarship Reforms, 441
 Scholarships, Awarding of, 61
 School: Camp, A, in France, 134; Diets and Home Influences, 211; Examinations, The Position and Value of, 26; Magazine, The, and its Development, 97; Moral Tone of the, The Methods of Raising the, 49; Out-of-Doors in the Slums, 201; The, the State, and the Civil Service, 289
 Schools and Scholars, 230
 Science: Domestic, The Teaching of, 434; in Girls' Schools, 452; Masters, Public School, Association of, 67
 Scientific Apparatus designed by Teachers, 131
 Scouting Experiment, A, 121
 Sequence in Geometry, The Question of, 173, 327
 Shakespeare Books, 231
 Sources, Original, in the Teaching of History, 294, 335
 Specialisation in a Secondary School, 59
 Spelling, Simplified, 126
 State: Education and the, 46; The, the School, and the Civil Service, 289
 Summer School for the Reform of Latin Teaching, 423
 Superannuation Scheme, A Belfast, 64

Swedish Gymnastics for English Schools, 1
 Teachers: and Educational Research, 321, 376; in Secondary Schools, The Insurance Act and, 241; Pensions for, 307
 Teachers': Associations, The Imperial Conference of, 305; Reference Libraries, 15; Registration Council, The, 135; Views of Examiners' Reports on Local Examinations, Geography, 4; Mathematics, 7, 94; Modern Languages, 9
 Teaching of Reading, On the, 13
 Training, Formal: Memory and, 54; the Present Position in regard to, 52
 Transversals, Parallels and, A New Treatment of, 443
 Typography, Eyesight and, 382
 University of London, The Home of the, 45
 Vocational: General and, Education, 371; Training in Edinburgh, 373
 Weather Study for Schools, 83
 Youth, To the Heart of, 471

AUTHORS.

Abbott, P.: The Fifth International Congress of Mathematicians, 416
 Adams, Prof. J.: An Objective Standard in Education, 367
 Addis, W. J.: The Place of Grammar in the Teaching of English, 257
 Aldridge, W.: Rural Schools—Some Criticisms and Suggestions, 244
 Angus, A. H.: An Experiment in Applied Education, 208
 Appleton, R. B.: Latin Plays, 324
 Barnard, S.: The Question of Sequence in Geometry, 173
 Bayliss, R. Wyke: A New Treatment of Parallels and Transversals, 443; Teachers' Views of Examiners' Reports on Local Examinations, 7, 94; The Question of Sequence in Geometry, 173
 Booth, T., and W. Ormesher: Correlation of History and Geography in Lower Forms, 281
 Bowtell, T. H.: Original Sources in the Teaching of History, 295
 Brown, Dr. R. N. Rudmose: The Use of Practical Exercises in the Teaching of Geography, 214
 Bryan, Prof. G. H.: The Question of Sequence in Geometry, 181
 Burrell, A.: The Place of Grammar in the Teaching of English, 257
 Carew, W. M.: Weather Study for Schools, 83
 Cavenagh, F. A.: The Place of Grammar in the Teaching of English, 258
 Charles, F.: The Insurance Act and Teachers in Secondary Schools, 241; The Second Moral Education Congress, 419
 Chisholm, G. G.: The Use of Practical Exercises in the Teaching of Geography, 215
 Cholmeley, R. F.: The Place of Grammar in the Teaching of English, 258
 Coulton, D. P.: The State, the School, and the Civil Service, 289
 Court, H.: The School Magazine and its Development, 97

Coxhead, G. E. S.: The Place of Grammar in the Teaching of English, 258
 Dale, Prof. J. B.: The Teaching of Mathematics in the United Kingdom, 251; The Question of Sequence in Geometry, 174
 Daniell, G. F.: The Use of Practical Exercises in the Teaching of Geography, 215
 Davis, Miss M. O.: Original Sources in the Teaching of History, 296
 Davison, Dr. C.: Mathematical Essays, 203; The Question of Sequence in Geometry, 327
 Dumville, B.: The Methods of Teaching Reading in the Early Stages, 408
 Eggar, W. D.: The Question of Sequence in Geometry, 175
 Evans, A. Johnson: Ecclesiastical Terminology, 87; Original Sources in the Teaching of History, 297
 Fairgrieve, J.: The Use of Practical Exercises in the Teaching of Geography, 216
 Faithfull, Miss L. M.: General and Vocational Education, 371; Science in Girls' Schools, 452
 Fawdry, R. C.: The Question of Sequence in Geometry, 175
 Filon, Dr. L. N. G.: The Question of Sequence in Geometry, 175
 Fletcher, A. L.: The Use of Simple Models in the Teaching of Elementary Geometry, 91
 Fletcher, C. R. L.: Original Sources in the Teaching of History, 297
 Foxley, B.: How Children Learn to Read, 413
 Fowler, J. H.: The Place of Grammar in the Teaching of English, 259
 Frazer, N. L.: The Place of Grammar in the Teaching of English, 259
 Freund, Miss Ida: Science in Girls' Schools, 453
 Frood, Miss S.: Science in Girls' Schools, 454
 Gadesden, Miss F.: Science in Girls' Schools, 454
 Godfrey, C.: The Question of Sequence in Geometry, 176
 Goodwin, S.: The Education of Young Boys, 139
 Grant, F. L.: The Question of Sequence in Geometry, 177
 Green, A. J. B.: Original Sources in the Teaching of History, 335
 Grist, C. J.: The Use of Practical Exercises in the Teaching of Geography, 217
 Hale, H. O.: The Kinematograph in School, 361
 Hankin, G. T.: Original Sources in the Teaching of History, 298
 Harries, A. H.: Schemes for Geography Teaching, 124; Teachers' Views of Examiners' Reports on Local Examinations, 4
 Hatton, A. P.: Army Educational Certificates, 283
 Hearnshaw, Prof. F. J. C.: Original Sources in the Teaching of History, 298; Teaching of History by means of Local Records, 57
 Heaton, E. W.: The Use of Practical Exercises in the Teaching of Geography, 217
 Hobson, Prof. E. W.: The Question of Sequence in Geometry, 177

- Holden, J.: Original Sources in the Teaching of History, 298
- Hudson, J. H.: A School Camp in France, 134
- Jones, Dr. A. C.: The Question of Sequence in Geometry, 177
- Jones, L. Rodwell: The Use of Practical Exercises in the Teaching of Geography, 218
- Jones, R. H.: Science in Girls' Schools, 454
- Kenwood, S. H.: The Standardisation of "Boys' Books," 163
- Kitchener, E. E.: Original Sources in the Teaching of History, 299
- Kyle, E. E.: Specialisation in a Secondary School, 59
- Laurie, Miss C. L.: Science in Girls' Schools, 455
- Leahy, Miss E. M.: Science in Girls' Schools, 455
- Lees, Miss E. S.: Science in Girls' Schools, 456
- L'Estrange, P. H.: The Use of Practical Exercises in the Teaching of Geography, 216
- Low, J. I.: The Place of Grammar in the Teaching of English, 260
- Lyde, Prof. L. W.: The Use of Practical Exercises in the Teaching of Geography, 218
- MacGillivray, D.: The Place of Grammar in the Teaching of English, 260
- Mainwaring, C. L.: The Aims of the Direct Method of Teaching Latin, 446
- Mair, D. B.: The Question of Sequence in Geometry, 178
- Mais, S. P. B.: The Teaching of English Grammar in Public Schools, 165; The Teaching of English Literature in Public Schools, 128
- Marten, C. H. K.: Original Sources in the Teaching of History, 299
- Martin, J.: The Use of Practical Exercises in the Teaching of Geography, 330
- Mason, Rev. A. P.: The Use of the Dramatic Interest in Latin Teaching, 161
- McCroben, Miss G.: The Methods of Raising the Moral Tone of the School, 49
- Milne, Dr. W. P.: The Question of Sequence in Geometry, 178; The Present Position of Mathematical Teaching, 387; The Teaching of Elementary Formal Geometry, 22
- Mitchell, G. R.: The Place of Grammar in the Teaching of English, 261
- Morris, Dr. J. E.: Original Sources in the Teaching of History, 299
- Murison, W.: The Place of Grammar in the Teaching of English, 333
- Myers, Dr. C. S.: The Present Position in regard to Formal Training, 52
- Ormesher, W., and T. Booth: Correlation of History and Geography in Lower Forms, 281
- Paterson, W. E.: The Question of Sequence in Geometry, 179
- Paton, J. L.: Scholarship Reforms, 441; School Out-of-Doors in the Slums, 201
- Payen-Payne, de V.: Recent French Books on England, 164
- Peck, J. W.: Vocational Training in Edinburgh, 373
- Pegrum, A. W.: The Oral Teaching of German, 168
- Pinkerton, Dr. P.: The Present Position of Mathematical Teaching, 388
- Polkinghorne, Miss R. K.: Original Sources in the Teaching of History, 300
- Powell, Miss H. L.: Science in Girls' Schools, 457
- Priestnall, J. and R. G.: La Salle de Phonétique, 205
- Pringle, G. C.: Original Sources in the Teaching of History, 301
- Raymont, T.: Teachers and Educational Research, 321, 376
- Reid, Dr. R. R.: Original Sources in the Teaching of History, 302; The Value of Geography and History in Elementary Education, 248
- Reynolds, J. B.: The Use of Practical Exercises in the Teaching of Geography, 219
- Richardson, H.: The Use of Practical Exercises in the Teaching of Geography, 219
- Rippmann, Prof. W.: Simplified Spelling, 126; Teachers' Views of Examiners' Reports on Local Examinations, 9
- Roberts, A. E.: The Place of Grammar in the Teaching of English, 262; The Teaching of English in the High School of the United States, 81
- Rücker, Lady: Science in Girls' Schools, 458
- Rusk, Dr. R. R.: Movements in Handwriting, 379
- Ryle, E.: A Three Years' Latin Course, 401
- Sadler, Dr. Michael E.: Education and the State, 46
- Sawtell, W. W.: The Place of Grammar in the Teaching of English, 262
- Shaw, Mrs. W. N.: Science in Girls' Schools, 458
- Shrubsall, Dr. F. C.: Swedish Gymnastics for English Schools, 1
- Siddons, A. W.: The Question of Sequence in Geometry, 179
- Sleight, Dr. W. G.: Memory and Formal Training, 54
- Smith, A.: Original Sources in the Teaching of History, 302
- Smith, E. S.: The Place of Grammar in the Teaching of English, 263
- Smith, F.: Original Sources in the Teaching of History, 302; Schlussfeier: an Annual Festival of German School Life, 207; The Psychology of Adult Reading, 404
- Smith, H. Bompas: Education at the British Association, 364; On the Teaching of Reading, 13
- Smith, T. Alford: The Use of Practical Exercises in the Teaching of Geography, 220
- Smithells, Prof. A.: Science in Girls' Schools, 460
- Snowball, F. G.: Original Sources in the Teaching of History, 303
- Stephenson, Miss A. M.: Original Sources in the Teaching of History, 304
- Stern, Miss R.: Science in Girls' Schools, 460
- Storr, Miss F.: Science in Girls' Schools, 461
- Strong, J.: A System of School Leaving-Certificates; with special reference to Scotland, 465
- Taylor, E. G. R.: The Use of Practical Exercises in the Teaching of Geography, 221
- Teale, Miss M. D.: The Place of Grammar in the Teaching of English, 263
- Tout, Prof. T. F.: Original Sources in the Teaching of History, 304
- Walker, Miss M. S.: Science in Girls' Schools, 462
- Wallis, B. C.: The Correlation of the Teaching of Mathematics and Geography, 448; The Use of Practical Exercises in the Teaching of Geography, 221
- Weedon, W. H.: English from the Foreigner's Point of View, 287
- Weisse, H. V.: The Place of Grammar in the Teaching of English, 264
- Wethey, E. A.: The Use of Practical Exercises in the Teaching of Geography, 222
- White, Dr. Jessie: Examinations and Inspections, 339; Science in Girls' Schools, 462
- Whitton, W. A.: Combustion—the Phlogiston Theory, 89
- Williams, C.: Awarding of Scholarships, 61
- Williams, G.: The Appeal of Poetry to Boys and Girls, 342
- Willis, H. G.: The Question of Sequence in Geometry, 180
- Willson, C. H. S.: Some Aspects of Co-Education, 247
- Wilson, J.: Science in Girls' Schools, 464
- Winbolt, S. E.: Original Sources in the Teaching of History, 304
- Witton, W. F.: The Question of Greek, 44
- Young, E.: A Scouting Experiment, 121; The Use of Practical Exercises in the Teaching of Geography, 222

CORRESPONDENCE.

- Air Thermometer, A Simple Form of Constant Volume, E. Newbery, 240
- Anvils or Stones on Hera's Feet?: E. H. Blakeney, The Reviewer, 400
- Apparatus for Supporting Lenses, Mirrors, Prisms, and Screens, Dr. T. J. Baker, 479
- Arithmetic, A Missing Chapter in: B. C. Wallis, H. C. Willis, 36
- Auto-suggestion in Science Teaching: P. L. J. Smith, 440
- Classics, Cheap: Rev. E. D. Hanson, 240
- Credibility of Evidence, A School Experiment in the: Arnold Smith, 119
- Dietaries, School: M. A. Wolff; The Writer of the Article, 279
- Diffusion, the Law of, Experiment to Illustrate the: W. G. Martin, 40
- English, The Place of Grammar in the Teaching of: A. C. Norton, 319; R. F. S. Morrison, 320

Fiction for the School Library: H. A. Webb, 80
 Form in Reading and Spelling, The Apprehension of: E. J. G. Bradford, 359
 Friendly Society for Teachers, A: F. Fairman, 79
 Geographical "Holiday Task," A: C. B. Thurston, 39
 Geography, The Use of Practical Exercises in the Teaching of: Dr. A. Wilmore, 277; C. B. Thurston, 278; C. Hopkins, 319
 Geometrical Figures: J. Hart-Smith, 480
 Geometry, Sequence in, The Question of: A Teacher of Geometry; Prof. J. B. Dale, 280; Prof. H. S. Carslaw, 356; C. Godfrey, 357
 Governesses, Private, and the Insurance Act: G. T. Hankin and E. Tidswell, 280
 Greek Tragedy: J. T. Sheppard, 320
 Greek Words in English: G. M. Willis, 358; Rev. Prof. W. W. Skeat, 399; Prof. W. Rippmann, 400
 Hare's Apparatus, A Modification of: W. G. Martin, 200
 History, Examinations in: J. S. Lindsey, 78
 Honour to whom Honour is Due: Dr. W. Lock; The Reviewer, 160
 Interesting Problem, An: Rev. J. M'Grath, R. Wyke Bayliss, G. E. Crawford, 37; R. Wyke Bayliss, 80
 "Leading Movements in Modern History," F. R. A. Jarvis; The Reviewer, 40
 Liquid Pressure with Density, Variation of: J. W. W. Dyer, 239
 Literary Drama Association: Fanny Johnson, 79
 London, the University of, The External Side of: Paganus, 480
 Lung Capacity, Apparatus to Test: Enquirer, 80
 "Mass," The Word: Arnold Merrick, 120
 Mathematics, Scholarship, The Teaching of: Dr. W. P. Milne, 320
 Models for Teaching Solid Geometry: T. Parkes, 320
 Nature-study and the Relation between Museums and Schools: A. R. Horwood, 38
 Parallel Lines: R. Wyke Bayliss, 440
 Parallel Straight Lines, A Note on: A. Merrick, 400
 Pension Schemes, Independent, R. Cary Gilson; Onlooker, 159
 Permutations, Circular: C. H. Bennett, R. Wyke Bayliss, 157; Prof. G. H. Bryan, 199
 Physical Training of Girls, The: R. Hovey, 278; The Reviewer, 279
 Pond Life: M. Gurrey; R. B. J. Lulham, 160
 Public-school Holidays: Paganus, 200
 Reading, The Psychology of: W. J. Jarvis, 479
 Riccardi Press Edition of "Virgil," The: P. Lee Warner, 480
 Right- and Left-Handedness: E. A. Eden, 480
 School History of England, A: C. R. L. Fletcher, 155; The Reviewer, 156
 School Reports: J. Hart-Smith, 357
 Science Text-books, The Use of, in

Secondary Schools: G. S. Mason, 200
 Sequence in Geometry, The Question of, Prof. G. H. Bryan, 158, 238; Parent, 239
 Set-square Theodolite: E. T. Bucknell, 358
 Shape and Colour, A Method of Teaching: W. Schröder, 119
 Specific Heats, The Determination of, C. F. Linnitt, 159
 Talks with Children about Themselves: Amy B. Barnard; The Reviewer, 80
 Thermal Effects of Compression and Expansion of Air, Experiment to show the: P. Wertheim, 239
 Time-table, The, a Suggestion: Headmaster, 40
 Transverse Waves, Demonstration of: E. G. Milner, 360
 Young's Modulus, Modified Apparatus for: W. R. Forbes, 240

EDUCATIONAL BOOKS PUBLISHED DURING

January, 1912, 116; February, 1912, 153; March, 1912, 198; April, 1912, 236; May, 1912, 275; June, 1912, 317; July, 1912, 354; August, 1912, 398; September, 1912, 438; October, 1912, 477

HISTORY AND CURRENT EVENTS.

27, 67, 99, 143, 185, 223, 267, 308, 344, 388, 427, 466

ITEMS OF INTEREST.

General, 27, 68, 100, 144, 186, 224, 267, 308, 345, 389, 428, 466
 Scottish, 29, 71, 102, 146, 189, 227, 270, 310, 346, 391, 430, 468
 Irish, 30, 72, 103, 148, 190, 228, 271, 311, 347, 392, 431, 469
 Welsh, 30, 73, 104, 148, 191, 229, 272, 311, 348, 393, 432, 470

PERSONAL PARAGRAPHS.

16, 63, 98, 138, 171, 212, 253, 293, 338, 381, 421, 450

RECENT SCHOOL BOOKS AND APPARATUS.

ART.

"Alpha" Pencils, 317
 Building Construction and Architectural Drawing, by J. A. Reid, 317
 Colour, Simple Lessons in, by H. A. Rankin, 35
 Memory in Art, The Training of the, 32
 Modelling in Cardboard, Paper, and Leatherette, by C. T. Hammond, 36
 Pastel Work, by H. A. Rankin, 397

CLASSICS.

Allman's Classics, with Notes for Teachers and Scholars, Caesar, B. G., Books 1 to 6; Virgil, Aeneid, Books 1 to 6, 194
 Ancient: History, A School Atlas of, 473; World, A History of the, by G. W. Botsford, 112
 Athens, Hellenistic, by W. S. Ferguson, 313
 Bell's Latin Picture Cards: Speculum Imperi Romani, edited, &c., by F. S. Granger, 436
 Caesar in Britain and Belgium, Simplified Text, with Introduction, &c., by J. H. Sleeman, 396
 Caesar's Fifth Campaign, from Caesar B.G.V., with introduction, notes, and vocabulary, by S. E. Winbolt, 74
 Cicero Pro Murena: texte latin, avec une introduction historique, une analyse et des notes, by E. Galletier, 75
 Cicero's Letters: a Selection, by S. E. Winbolt, 113
 Clari Romani: Augustus, edited by A. J. Spilsbury, 436
 Classical: Association, Proceedings of the, January, 1912, Vol. IX., 352; Recommendations of the, on the Teaching of Latin and Greek: being a Series of Reports by Committees, 352; Studies, The Year's Work in, 1911, edited by L. Whibley, 195; Teaching, Studies in the History of, Irish and Continental, by the Rev. T. Corcoran, S.J., 110
 Classic Myths, The, in English Literature and Art, accompanied by an Interpretative and Illustrative Commentary, by C. M. Gayley, 149
 Empires of the Old World, The, to the Fall of Rome, by M. Bramston, 113
 Greek: Genius, The, and its Meaning to us, by R. W. Livingstone, 434; Language, Comparative Grammar of the, by Dr. J. Wright, 315; Syntax, The Essentials of, an outline of the ordinary prose construction, together with exercises in composition based on Xenophon, Lysias, and Plato's Apology, by C. C. Mierow, 75; Tragedy, by J. T. Sheppard, 233
 Herodotus, A Commentary on, by W. W. How and J. Wells, Vol. I., Books 1 to 4; Vol. II., Books 5 to 8, 274
 Homer, Iliad: XIII. and XIV., translated by E. H. Blakeney, 113; XV. and XVI., translated by E. H. Blakeney, 315
 Isidori Hispalensis Episcopi Etymologiarum sive Originum, Libri xx., Recognovit brevique adnotatione critica instruxit W. M. Lindsay, 2 vols., 473
 Isocrates: Cyprian Orations: Evagoras, Ad Nicoclem, Nicocles aut Cyprii, edited, &c., by E. S. Forster, 233, 352
 Juvenal, Fourteen Satires of, translated into English by Prof. A. Leeper, 395
 Kallistratus, by A. H. Gilkes, 233

- Latin: Book, A First Year, by J. Thompson, 351; Composition, Higher, by A. H. Allcroft and A. J. F. Collins, 74; Course, Senior, by A. J. F. Collins and A. Robinson, 233; Love Poems, translated by J. M. Krause, 395; Plays, Easy, by M. L. Newman, 194; Translation for Public-school Scholarships, by B. Dalton, 113; Word Formation, A Manual of, for Secondary Schools, by P. R. Jenks, 352
- Lexicon, An English-Greek, by G. M. Edwards, 315
- Mirabilia: a Short Collection of Modern Stories in Latin, by C. D. Olive, 194
- Norma Elegiaca: a Standard for the Writing of Ovidian Elegiacs, selected by R. L. A. du Pontet, 195
- Novum Testamentum Latinae, secundum editionem S. Hieronymi ad cod. MSS. fidei rescensuerunt Iohannes Wordsworth, S.T.P., et Henricus White, S.T.P., ed. minor curante H. White, 194
- Ovid, Selections from, Heroic and Elegiac, by A. C. B. Brown, 150
- Pervigilium Veneris, 74
- Roman People, The Story of the, by E. M. Tapman, 352
- Rome, by W. Warde Fowler, 233
- Silva Latina, a Latin Reading Book, chosen and arranged by J. D. Duff, 395
- Taciti, C. Cornelii, Cnaei, Iulii Agricolae Vita, typis novis majorem in perspicuitatem excisa, 150
- Tacitus: Roman Conquest of Britain, by W. Modden, 194
- Thucydides IV., edited by A. W. Spratt, 273
- Vergili, Publi, Maronis opera, Scriptorum Classicorum Bibliotheca Riccardiana, 2 vols., 435
- Vergil's Athletic Sports, selected from Vergil's Aeneid, edited, with introduction, &c., by S. E. Winbolt, 396
- ENGLISH.
- Alfred, The Age of, by F. I. Snell, 474
- Arnold's Essays in Criticism, 1st series, 195
- Baker's Cast up by the Sea, 195
- Barbarian and Noble, by M. F. Lansing, 352
- Boy and Girl Heroes, 195
- Brave Days of Old, The, 33
- Bunyan, Stories from, by E. L. Elias, 33
- Cambridge History of English Literature: The Age of Dryden, edited by Dr. A. W. Ward and A. R. Waller, 436
- Cave Men: Early; Later, by K. E. Dopp, 475
- Chambers's Standard Authors: The Gorilla Hunters, and seven other volumes, 234
- Children of History, 195
- Children's Library, The, by W. C. B. Sayers, 195
- Christendom, The Seven Champions of, by A. R. Matthews, 195
- Composition, Teaching, by J. E. Feasey, 474
- Diaconus: Exercises in the Meaning of English, by E. E. Loane, 474
- Dickens Reader, A, by Mrs. J. C. Smith, 436
- Dictation, The Ideal, and Composition Exercises, Senior Division, 75
- Elizabethan Drama, Chief, excluding Shakespeare, edited by W. A. Neilson, 231
- Emerson's Essays, 195
- English: Composition, Senior Course of, by E. W. Edmunds, 150; Exercises for Intermediate Classes, by E. B. Bruce, 234; Grammar, A Skeleton, by S. R. Unwin, 274; Grammar, The Beginner's, by F. W. and E. Harrison, 75; Grammar, The Revised, a new edition of West's Elements of English Grammar, 274; How to Learn, a Reader for Foreigners, by A. Prior and A. Ryan, 113; Journal, The: January, 1912, 196; Language, The, by L. P. Smith, 474; Literature, History of, by A. Lang, 396; Literature in the Nineteenth Century, by A. T. Wyatt and H. Clay, 316; Literature, Masters of, De Quincey, by S. Low, 314; Literature: Modern, by G. H. Mair, 351; Literature, The Story of, by A. Buckland, 314; English Prose: A Book of, 1470-1900, selected by J. H. Fowler, 113; Prose for Repetition, by N. L. Frazer, 314; Prose Rhythm, A History of, by Prof. G. Saintsbury, 396; The Model Classbooks of, by F. W. Chambers and A. J. Ker, in five books, each with a Companion Teacher's Book, 234; The Teaching of, by C. L. Thomson, 151
- Etymology, The Science of, by Dr. W. W. Skeat, 474
- Famous People, Tales of, 33
- Great Writers, by Prof. T. E. Woodberry, 353
- Heroes, The, Kingsley's, 195
- Hiawatha, On the Trail of, by Members of the Staff of the Seymour Park Infants' School, Stretford, 233
- History of England, The, from the Earliest Times to the Death of King Edward VII., by A. J. Williams and S. A. Walker, 195
- Huxley's Man's Place in Nature, 195
- Iliad, The, Pope's, edited by C. E. Rhodes, 195
- Intellectual Life, The, by P. J. Hamerton, 75
- Ivory Gate, The, in four books, 436
- Letters: from Hell, translated by J. Sutter, 75; of Great Writers, edited by H. V. Taylor, 396
- Longmans' English Course for Indian Schools, by J. C. Allen, 274
- Lyrical: Ballads, 1798, edited by H. Littledale, 351; Forms in English, edited, &c., by N. Hepple, 351
- Matter, Form, and Style, by H. O'Grady, 352
- Morley's Life of Gladstone, 3 vols., 195
- Nineteenth Century Essays, edited by G. Sampson, 196
- Northland, Out of the, by E. K. Baker, 195
- Odyssey, The, Pope's, edited by E. S. and W. Shumway, 195
- Open Road Library: Page, Esquire, and Knight, by M. F. Lansing, 33
- Oxford Industrial Readers, by A. O. Cooke: A Visit to a Coal Mine; A Day in an Ironworks, 352
- Pembroke's, The Countess of, Arcadia, edited by A. Feuillerat, 231
- Picture Composition, three books, 33
- Poetry: and Life Series: Lowell, Coleridge, Shelley, Burns, Matthew Arnold, Gray, by W. H. Hudson, 233; Gray; Keats, by W. H. Hudson, 33
- Poor Man's House, A, by S. Reynolds, 75
- Quest of the Red Cross Knight, The, by Mrs. F. S. Boas, 33
- Scottish Vernacular Poetry, edited by T. Robb, 474
- Selborne's Defence of the Church of England against Disestablishment, 195
- Sentences and their Elements, by S. C. Earle, H. J. Savage, and F. E. Seavey, 196
- Shakespeare: Comedies, Histories, and Tragedies, with introduction and glossaries, 316; Glossary, A, by C. T. Onions, 113; Hamlet, Coriolanus, Twelfth Night, edited by G. S. Gordon, 231; The Children's: Macbeth, As You Like It, The Tempest, Midsummer Night's Dream, 33; The Granta, edited by J. H. Lobban, 231; The Tudor (Plays), edited by W. A. Neilson and A. H. Thorndike, 231
- Shakespeare's England, Life in, a Book of Elizabethan Prose, compiled by J. D. Wilson, 75
- Sketchbook, The, by Washington Irving, 195
- Southey's Letters, selected by M. H. Fitzgerald, 433
- South Sea Bubbles, by the Earl and the Doctor, 75
- Spelling, Simplified, an Appeal to Common Sense, 150
- Strang's, Herbert, Library: A Book of Golden Deeds; Stories from Grimm; A Wonder Book, 33
- Torch, The, by Prof. T. E. Woodberry, 353
- Tree Dwellers, by K. E. Dopp, 475
- Verse, A Garland of, by A. H. Miles, 316
- Welsh Poetry, Old and New, edited by A. P. Graves, 474
- Words, The Romance of, by Prof. E. Weekley, 274
- GEOGRAPHY.
- Africa, The Opening up of, by Sir H. H. Johnston (Home University Library), 105
- British Isles, Geography of the, by J. F. Unstead and E. G. R. Taylor, 105; The, by E. M. Hughes, 105
- Cambridge: County Geographies, The, Aberdeenshire, by A. Mackie; Huntingdonshire, by W. M. Noble; Worcestershire, by L. J. Wills, 105; Manuals of Science and Literature, The, New Zealand, by the Hon. Sir R. Stout and J. L. Stout, 105

- Clarendon Geography, The, Vol. I., by F. D. Herbertson, 394
- Climatic Control, by L. C. W. Bonaccina, 105
- Contour Outline Maps, Improved, enlarged form for teacher's use, Europe, 106
- Edinburgh School Atlas, The, 106
- England, Bathy-ographical Map, 34
- Europe: A Geography of, by T. A. Smith, 394; in Pictures, by H. C. Barnard, 105
- Geography: A Handbook of, by A. J. Herbertson, Vol. I., General Geography, The British Isles and Europe, 105; Atlas of the British Colonies, &c., The New, 106; Commercial, General and Regional, by J. F. Unstead and E. G. R. Taylor, 105; First Steps in, by M. S. Elliott, 105; Historical, of the British Colonies, Vol. V., Canada, Part III., Geographical; Part IV., Newfoundland, by J. D. Rogers, 105; of the World, A, by B. C. Wallis, 151; Practical, A Class-book of, by E. Young and J. Fairgrieve, 105; Questions and Exercises in, I., The World, by R. J. Finch, 105; The Junior Scientific, The British Empire, by E. W. Heaton, 105
- Highroads of Geography, Book III., South Britain, 105
- Ideal Scholar's Own Atlas and Geography, The, 106
- Navy League Map, Handbook to the, by C. H. Crofts, 105
- Oxford Geographies, The: Junior Geography Questions, by F. M. Kirk; Statistical Appendix, by E. G. R. Taylor, 105
- Peeps: at Industries, Sugar, by E. A. Browne, 105; at Many Lands, Wales, by E. M. Wilmot-Buxton; The British Empire, by F. Fox, 105
- Philips' Modern School Atlas of Comparative Geography, by G. Philip, 106
- Pitman's: Commercial Series, Commercial Geography of the British Empire Abroad and Foreign Countries, 105; First Steps in Business, Commercial Geography, by J. Stephenson, 105
- Scholar's Geographical Exercise Book, The: England and Wales, 106
- Statesman's Year Book, 1912, The, edited by Dr. J. S. Keltie, 274
- Surrey, The Highlands of South-west, A Geographical Study in Sand and Clay, by E. C. Matthews, 105
- Wilson's Folding Globe, 106
- World Geography, by Profs. R. S. Tarr and F. M. McMurry, 394
- HISTORY.**
- America, British North, 1763-1867, by A. W. Tilby, 151
- American: Colonial History, by R. L. Ashley, 254; People, A Short History of the, by E. H. L. Turpin, 75
- Ancient World, The, by C. du Pontet, 396
- Arlen's Reversible Historical and Political Chart, 31
- Arthur, King, in History and Legend, by W. L. Jones, 151
- Artist's Autolithographs in Colours, 31
- Australia, A Short History of, by T. Bateson, 151
- Britain in the Tropics, by A. W. Tilby, 475
- British: Constitution, A History of the, by J. H. B. Masterman, 353; History, An Outline of, by A. D. Innes, 151; Junior School, by A. D. Innes, 274; Pictures of, by E. L. Hoskyn, 314; Synopsis of, 133; The Groundwork of, by G. T. Warner and C. H. K. Marten, 353
- Cambridge: Historical Readers, The, edited by G. F. Bosworth, five books, 33; Mediæval History, The, Vol. I., 192; Modern History, The, Vol. XIII., edited by A. W. Ward, G. W. Prothero, and S. Leathes, 192; Atlas, edited by A. W. Ward, G. W. Prothero, S. Leathes, and E. A. Benians, 437
- Canada: by B. Horne, 235; The Great Fight for, edited by H. Strang, 76
- Cheshire, A School History of, by C. E. Kelsey, 465
- China, The Civilisation of, by Prof. H. A. Giles, 353
- Conquest to Charter, From, by E. Ross, 76
- Elizabethan Adventurers upon the Spanish Main, by A. M. Hyamson, 235
- Empire: XVIII^e Siècle, Revolution, by A. Malet, 475; The Story of the, by G. T. Hankin, 235
- England: and the Empire, The Making of, by M. E. Hancock, 143; An Industrial and Social History of, by G. Collar, 234; A School History of, Teacher's Companion to, by C. R. L. Fletcher, 436
- English: Industrial History, An Introduction to, by H. Ailsop, 397; Parish Church, The Historical Growth of the, by A. H. Thompson, 274; Revolution, Four Lectures on the, by Prof. T. H. Green, 475
- Europe, Modern, The Making of, Vol. I., The Dark Ages, by C. R. L. Fletcher, 475
- France under Richelieu and Colbert, by J. H. Bridges, 475
- Heroes of the Middle Ages, by E. M. Tappan, 194
- Historical: Novels and Tales, A Guide to the Best, by J. Nield, fourth edition, 107; Poems and Ballads, 235; Portraits, 1600-1700, 475
- History: in Fiction: a Guide to the Best Historical Romances, Sagas, Novels and Tales, by E. A. Baker, Vol. I., English Fiction; Vol. II., American and Foreign Fiction, 107; Teaching, An Experiment in, by E. Rockliff, 396; The Dawn of, by Prof. J. L. Myres, 274; The Study of, in Secondary Schools, 34
- London, The Making of, by Sir Laurence Gomme, 234
- National Story, Our, Book IV., 235
- Nelson: The Life of, by G. Callender, 475; The Story of, by H. F. B. Wheeler, 234
- Oxford History Readers, Book V., The Tudor Period, by I. L. Plunket, 31; Book VI., The Stuart Period, by J. Owen, 33
- Patriots and Tyrants, by M. F. Lansing, 128
- Peoples, The Wanderings of, by Dr. A. C. Haddon, 274
- Restoration, The, and the Revolution, by A. Hassall, 234
- Scholars' Cartoons, The, No. 11, by A. B. Giles, 31
- Stewart Times, In, by E. L. Elias, 33
- Tower History Readers, The: The House of Hanover, by T. Bevan; The Complete History of England, by F. A. Farrar, 76; The Tudor Period; The Stuart Period, 34
- War-Pictures from Clarendon, edited by R. J. Mackenzie, 475
- Wealth, The Science of, by J. A. Hobson, 76
- Wellington, The Life of, by W. H. Maxwell, 475
- MATHEMATICS.**
- Algebra: A New, by S. Barnard and J. M. Child, Vol. II., Parts IV.-VI., 196; A School, Parts II. and III., by H. S. Hall, 437
- Arithmetic for Schools and Colleges, by F. C. Boon, 35
- Calculus: Differential and Integral, by L. S. Hulburt, 437; for Beginners, The, by W. M. Baker, 353
- Civil Service Test Papers in Mathematics, by A. F. van der Heyden, 76
- Determinants, The Theory of, in the Historical Order of Development, by Dr. T. Muir, Vol. II., Period 1841-1860, 353
- Geometry: Algebraical, An Introduction to, by A. Clement-Jones, 397; Analytic, of Three Dimensions, by Dr. G. Salmon, revised by R. A. P. Rogers, fifth edition, Vol. I., 235; Analytical, by C. O. Tuckey and W. A. Naylor, 476; A New, by W. M. Baker and A. A. Bourne, 76; A School, by H. H. Champion and J. C. C. Lane, 196; Cross-ratio, An Elementary Treatise on, by J. J. Milne, 152; Non-Euclidean, by Prof. R. Bonola, translated, &c., by Prof. R. S. Carslaw, 476; Practical, and Graphics, by D. A. Low, 476; Projective, by Dr. W. P. Milne, 235; The Teaching of, by D. E. Smith, 34
- Groups, Lie Theory of One-parameter, An Introduction to the, by A. Cohen, 316
- Hydromechanics, A Treatise on, Part I., Hydrostatics, by Dr. W. H. Besant and A. S. Ramsey, 7th edition, 34
- Integrals, Elementary, a Short Table, by T. J. I'a. Bromwich, 196
- Mathematics: An Introduction to, by Dr. A. N. Whitehead, 151; Junior, by D. B. Mair, 196
- Mechanics, Analytical, Introduction to, by A. Ziwet and P. Field, 316
- Mensuration, Practical, by A. J. Dicks, 76

Munro's Book-keeping Down to Date, including Accountancy and Banking, by A. Munro, fifth edition, 76
 Practical Mathematics and Geometry for Technical Students, by E. L. Bates and F. Charlesworth, three parts, 34
 Statics, An Elementary Treatise on, by S. L. Loney, 235
 Tables of Physical and Chemical Constants and some Mathematical Functions, by Dr. G. W. C. Kaye and Prof. T. H. Laby, 76
 Woodwork Exercises treated Mathematically, by F. E. Drury, 264

MISCELLANEOUS.

Acts of the Apostles, Part II., by W. H. Flecker, 349
 Athletic Training for Girls, compiled and edited by C. E. Thomas, 230
 Badminton, by S. M. Massey, 193
 Bible, The Spiritual Sequence of the, by J. Gamble, 32
 Book-keeping and Accountancy, Pitman's Examination Notes on, by J. B. Harrold, 58
 Boy Wanted, by N. Waterman and F. E. Bumby, 471
 Cambridge: Bible for Schools and Colleges, Galatians, edited by A. L. Williams, 349; Bible for Schools, The Smaller, Judges and Ruth, by J. S. Black and A. W. Streane; I. Kings, by T. H. Hennessy; II. Kings, by T. H. Hennessy; Proverbs, by J. R. Coates; Joel and Amos, by J. C. H. How; The Acts, by H. C. O. Lanchester, 349; Manuals of Science and Literature, General Editors, Dr. P. Giles and Prof. A. C. Seward, 312; Pocket Diary, 1912-13, 438
 Charterhouse of London, The, Monastery, Palace, and Thomas Sutton's Foundation, by W. F. Taylor, 354
 Children and the Law, by W. H. S. Garnett, 36
 Christian Biography and Literature to the end of the Sixth Century A.D., A Dictionary of, with an account of the Principle Sects and Heresies, edited by H. Wace and W. C. Piercy, 111
 Circumstances or Character?, by C. F. Rogers, 32
 Civics, by L. J. Sparkes, 471
 Clifton School Addresses, by S. H. Irwin, 471
 Courtier Stoops, The, by Sir J. H. Yoxall, 78
 Dramatised History, by Mrs. B. Gothorp, Book I., 116
 Etona, Floreat, Anecdotes and Memories of Eton College, by R. Nevill, 111
 Games, Easy, for Little Players: A Collection of Dramatised Nursery Rhymes, by M. Broughton, 116
 Girl Wanted, The, by N. Waterman and G. Bartruse, 471
 Girls' School Year Book (Public Schools), 1912, 317
 Handicrafts, Rural, by G. F. Johnson, 378

Home University Library of Modern Knowledge, Editors, Prof. G. Murray, H. Fisher, Prof. J. A. Thomson, and Prof. W. T. Brewster, 312
 Israel and Judah, The Story of, by H. J. Chaytor, 32
 Jesus, The Life and Teaching of, by E. E. R. Mumford, 349
 Joinery, Amateur, in the Home, by Dr. G. A. Audsley and B. Audsley, 366
 Keyboard Explained, The, with some account of a System of "Tonic" Notation and other Matters, by I. S. Allen, 115
 Kynaston, Herbert, a Memoir, with Selections from his Occasional Writings, by the Rev. E. D. Stone, 354
 Magnifier, "Third Hand" Thumb, 354
 Moral Life, The, by Dr. W. R. Sorley, 32
 Musical Composition: a Short Treatise for Students, by Sir C. Villiers Stanford, 115
 Music, The Theory of, for Student Teachers, by J. Rodger, 115
 Myths and Legends of the Celtic Race, by T. W. Rolleston, 232
 Pansy Patch, The, by A. M. Chester-ton, 471
 Patriarchs and Prophets, by J. Smith, 349
 People's Books, The, 312
 Pitman's Dramatic Readers: Junior Book for Standards I. and II.; Intermediate Book for Standards III. and IV., 116
 Plays, Standard, for Amateur Performance in Girls' Schools: Comus, Three Scenes, arranged by L. Chater, 116
 Public Schools Year Book, 1912, The, edited by H. F. W. Deane and W. A. Evans, 152
 Religious Poetry of Persia, Early, by Dr. J. H. Moulton, 32
 Schoolmasters' Year Book and Directory, 1912, The, 152
 Singing Circle, The, A Picture Book of Action Songs, Other Songs, and Dances, collected and arranged by Lady Bell, 115
 St. Matthew, by T. Walker and J. W. Shuker, 349; by the Rev. A. S. Walpole, 32
 Stories for Young Hearts and Minds, by F. J. Gould, 471
 Talks with Children about Themselves, by A. B. Barnard, 32
 Thessalonians, I., II., Timothy and Titus, by H. W. Fulford, 32

MODERN LANGUAGES.

Arnold's Modern German Course, by F. W. Wilson, 112
 Babel, The Passing of, by B. Long, 232
 Béranger, Les Chansons, 273
 Bonhomme, Le Petit, Adapté par E. Magee, 435
 Capus, Mlle. M., Pour Charmer nos Petits, edited by C. Fairgrieve, 435

Daudet, Le Petit Chose vient à Paris, edited by T. Dyson, 351
 de Laboulaye, E., Poucinet, edited by P. Shaw Jeffrey, 351
 Dent's French Primer, by W. E. M. Llewellyn, 74
 Deux Comédies Enfantsines, by M. Reichenbach, 112
 du Camp, M., La Dette de Jeu, edited by de V. Payen-Payne, 74
 Dumas, A., Histoire de mes Bêtes, edited by L. H. Althaus, 150; Napoléon à l'île d'Elbe, edited by C. Saupois, 232
 English for Foreign Students, Examples and Exercises in, by W. C. Thorley, 232
 Erckmann-Chatrian, La Montre du Doyen; Le Vieux Tailleur, edited by T. H. Burtenshaw, Teachers' Edition; Pupils' Edition, 232
 French: Composition, Papers set at Civil Service Examinations, edited by H. N. Adair, 232; Course, Direct, by H. M. Chaytor, 351; Idioms, Progressive, compiled by R. de Blanchard, 150; Literature, Landmarks in, by G. L. Strachey, 351; Unseens, Senior, edited by L. J. Gardiner, 74
 Gasc's Little Gem Dictionary of the French and English Languages, 150
 German: Literature, Outlines of the History of, by Prof. J. G. Robertson, 315; Letterwriter, Personal and Social, by P. Franck, revised by J. C. H. Schaffhausen, 315; Poetry for Beginners, Easy, edited by C. W. Collmann, 315; Prose and Poetry, Specimens of, by C. R. Fausset, 315; Verse, The Oxford Book of, edited by Prof. H. G. Fiedler, 435
 Giuffrida, Prof. Sante, Nuovo Corso di Pedagogia Elementare, Volume Terzo, Parte III., Sezione Prima: Pedagogia Inglese, 395
 Halévy, L., Nôraud, Guignol, et Deux Cyclones, edited by W. M. Poole and E. L. Lassimonne, 232
 Hauff, W., Fatmes Errettung, edited by Prof. D. L. Savory, 435
 Hoffmann, H., Iwan der Schreckliche, edited by C. M. Poor, 315
 Hugo, V., Gavroche, adapted and edited by M. Ceppi, 395
 Je sais un conte, by Mrs. J. G. Frazer, 74
 La Journée d'un Petit Lycéen, by A. Auzas, 273
 Lectures et Exercices, Cours Supérieur, edited by F. M. S. Batchelor, 232
 Molière, Les Précieuses Ridicules, edited by M. Ceppi, 395
 Montaigne, Essais Choisis, 273
 Morceaux Choisis (XIX^e Siècle), Cours Supérieur, by Prof. E. Weekley, 273
 Perrault, Ch., La Belle au Bois Dormant, Le Chat Botté et Le Petit Poucet, edited by A. G. Latham, 150
 Pitman's: Examination Notes on French, by F. W. M. Draper,

- 395; French Reciter for Junior Forms, by F. W. M. Draper, 74
 Sébillot, P., Contes des Marins de la Haute-Bretagne, edited by J. E. Mansion, 351
 Siepmann's French Series for Rapid Reading: Musset, Croisilles, Pierre et Camille; Chateaubriand, Voyage en Grèce; Mignet, Histoire de la Révolution Française; Scribe et Legouvé, Bataille de Dames, 273
 Verne, J., Martin Paz, edited by W. M. Poole and E. L. Lassimonne, 150
 Voyage à Amiens et Paris, by H. M. Peake and C. Ledez, 307
 Zedelius, Th., Geleite die draussen sind!, edited by D. L. Savory, 315

PEDAGOGY.

- Boy Life, Problems of, edited by J. H. Whitehouse, 230
 Children at Play, by R. M. Bradley, 193
 Citizenship, Education for, by Dr. G. Kirschensteiner, translated by A. J. Pressland, 230
 Educational Subjects, Special Reports on, Nos. 9 to 21, 251
 Educational Theory, The Evolution of, by Prof. J. Adams, 349
 Education: A First Book, by Prof. E. L. Thorndike, 472; by Life, edited by H. B. Smith, 433; Courses, Outlines of, 108; Cyclopaedia of, edited by Prof. P. Monroe, Vol. II., 110; Experimental, Introduction to, by Dr. R. R. Rusk, 472; Outlines of the History of, by Prof. W. B. Aspinwall, 275; Social Aspects of, by Dr. I. King, 433; the Philosophy of, Outlines of a Course in, by Prof. J. A. MacVannel, 433; The Psychology of, by Prof. J. Welton, 109; Thoughts on, from Matthew Arnold, edited by L. Huxley, 230
 Games, Organised: edited by N. Chamberlain, 193; for the Playground, by R. S. Wood, 193
 Geography in Scottish Primary Schools, Memorandum on the Teaching of, 255
 Learning Process, The, by Prof. S. S. Colvin, 108
 Locke's, John, Educational Writings, edited by Prof. J. W. Adamson, 472
 London County Council, Annual Report of the, 1910, Vol. IV., Education, 11
 Manchester High School for Girls, The Story of the, 1871-1911, by S. A. Burstall, 152
 Montessori Method, The, by Dr. M. Montessori, 472
 Pedagogy, Experimental, and the Psychology of the Child, by Dr. E. Claparède, translated by M. Louch and H. Holman, 109
 Play, Organised, at Home and Abroad, edited by R. E. Roper, 193
 Psychology: An Introduction to, by Prof. R. M. Yerkes, 108; An Introduction to, more especially for Teachers, by Profs. T. Love-day and J. A. Green, 472; Educational, Experiments in, by Dr. D. Starch, 108; Experimental, An Introduction to, by Dr. C. S. Myers, 109; A Text-book of, with Laboratory Exercises, by Dr. C. S. Myers, 2 vols., second edition, 109; the Essentials of, by Prof. W. B. Pillsbury, 109; The Place of, in the Training of the Teacher, by Prof. A. Darroch, 109; the Study of Behaviour, by W. McDougall, 433
 Rousseau: on Education, edited by R. L. Archer, 472; The Educational Theory of, by Dr. W. Boyd, 108
 School Administration, Outlines of, by Dr. A. C. Perry, 230
 School: and Country, by R. G. Crawford, 193; Inspector, Memories of a, by A. J. Swinburne, 230; Organisation for Secondary Teachers, by D. H. Vachna, 108; The, by Prof. J. J. Findlay, 230
 Schools, All the, of All the People, by W. H. Smith, 433
 Teaching Process, A Brief Course in the, by Dr. G. D. Strayer, 108
 Universities of the World, The, by Dr. C. F. Thwing, 108
 Vives and the Renaissance Education of Women, edited by Prof. F. Watson, 472

SCIENCE AND TECHNOLOGY.

- Astronomy, A Primer of, by Sir Robert Ball, 77
 Bird Life of the Seasons, edited by C. A. Hall, 437
 Botany: for High Schools, by G. F. Atkinson, 115; Intermediate Text-book of, by E. Evans, 393; or the Modern Study of Plants, by Dr. M. Stopes, 393; Practical, by Dr. F. Cavers, 393; Practical, by J. Y. Bergen and O. W. Caldwell, 393; The Senior, by Dr. F. Cavers, 393
 British: Journal Photographic Almanac, The, and Photographer's Daily Companion, 1912, edited by G. E. Brown, 115; Plants: their Biology and Ecology, by J. F. Bevis and H. J. Jeffery, 393; Vegetation, Types of, edited by A. G. Tansley, 393
 Changeful Earth, The, by Prof. G. A. J. Cole, 197
 Chemistry: and Chemical Magic, by V. E. Johnson, 77; an Elementary Text-book, by W. C. Morgan and J. A. Lyman, 77; A School, by F. R. L. Wilson and G. W. Hedley, 197; Experimental, by F. E. Weston, 77; Inorganic, by S. W. Burnell and A. J. Dicks, 197; Inorganic, Elements of, by the late W. A. Shenstone, edited by R. G. Durrant, 397; Inorganic, Outlines of, with Special Reference to its Historical Development, by Dr. E. B. Ludlam, 152; Note-book, by E. J. Sumner, 149; of House-craft, by L. Hall and I. Grünbaum, 434; Organic, by W. H. Perkin and F. S. Kipping, 197; Practical, by G. B. Neave and J. W. Agnew, 197; Practical, Problems in, by G. F. Hood, 397; Senior, by G. H. Bailey and H. W. Bausor, 114
 Colloidal and Crystalloidal State of Matter, The, by P. Rohland, translated by W. J. Britland and H. E. Potts, 197
 Domestic Science, Experimental, by R. H. Jones, 434
 Education and Preventive Medicine, by Dr. N. Ditman, 350
 Electricity and Magnetism, Practical, An Elementary Course on, by D. H. Ogley, 35
 Engines and Boilers Practically Considered: a Handbook for Young Engineers on the Construction and Working of Steam, Gas, Oil, and Petrol Engines, and Steam Boilers, by W. McQuade, 114
 Evolution, by Profs. P. Geddes and J. A. Thomson, 275
 Ferns, British, by F. G. Heath, 168
 Flatters and Garnett's Catalogue of Lantern Slides, 476
 Flying and some of its Mysteries, by V. E. Johnson, 114
 Gallenkamp's Catalogue of Apparatus for Botanical Laboratories and the Study of Plant Physiology, 437
 Griffin's Rainbow Cup, 381
 Heat: and the Principles of Thermodynamics, by Dr. C. H. Draper, new edition, 236; A Text-book of, by Drs. R. W. Stewart and J. Satterly, 236; Senior, by Drs. R. W. Stewart and J. Satterly, 236
 Heredity, by L. Doncaster, 182
 Industrial Drawing and Geometry, by H. J. Spooner, 114
 Liverworts, The, British and Foreign, by Sir Edwin and Agnes Fry, 115
 Lyell, The Student's, edited by Prof. J. W. Judd, second edition, 275
 Magnetism and Electricity, Senior, by Drs. R. H. Jude and J. Satterly, 236
 Mechanics: and Physics for Technical Students, An Introductory Course of, 114; and some of its Mysteries, by V. E. Johnson, 114
 Microscopy, Modern, by M. I. Cross and M. J. Cole, fourth edition, 477
 Modern Science Reader, with Special Reference to Chemistry, edited by R. M. Bird, 77
 Monkey-folk of South Africa, The, by F. W. Fitzsimons, 437
 Natural History Pictures, Longmans', by G. E. Lodge, 65
 Nature's Workshop, Lessons from, by W. J. Claxton, 476
 Photography, The Advance of, by A. E. Garrett, 397
 Physics: A Laboratory Note-book of,

- | | | |
|---|---|--|
| <p>by S. A. McDowall, Parts I. and II., 114; College, by Drs. J. O. Reed and K. E. Guthe, 235; General, for Students, by E. Edser, 35; Intermediate, by Dr. W. Watson, 471; Practical, Notes on, by Dr. A. H. Fison, 35</p> <p>Plant Animals, by Prof. F. Keeble, 115</p> <p>Plant: Physiology, by Prof. B. M. Duggar, 275; Physiology, Prac-</p> | <p>tical, by Prof. F. Keeble, assisted by M. C. Rayner, 115; World Links with the Past in the, by Prof. A. C. Seward, 303</p> <p>Quantitative Analysis, Elementary, by F. M. Oldham, 77</p> <p>Soil, Lessons on, by Dr. E. I. Russell, 197</p> <p>Star Map, The Great, by Prof. H. H. Turner, 197</p> <p>Stars and Constellations: a Little</p> | <p>Guide to the Sky, by Agnes Fry, 152</p> <p>Sun's Babies, The, by E. Howes, 105</p> <p>Wild Flowers as they Grow, Photographed in Colour direct from Nature, by H. E. Corke, with descriptive text by G. C. Nuttall, Series 3, 316</p> <p>Zoology, First Book of, by T. H. Burlend, 316</p> <p>Zoo Reader, The, by G. Davidson, 26</p> |
|---|---|--|

RICHARD CLAY AND SONS, LIMITED,
BRUNSWICK STREET, STAMFORD STREET, S. E.
AND BUNGAY, SUFFOLK

THE School World

A Monthly Magazine of Educational Work and Progress.

VOL. XIV., No. 168.]

DECEMBER, 1912.

[SIXPENCE MONTHLY.
YEARLY VOLUME 7s. 6d. NET

Registered for Transmission to Canada by Canadian Magazine Post.

CONTENTS.

	PAGE
SCHOLARSHIP REFORMS. By J. L. PATON, M.A.	441
A NEW TREATMENT OF PARALLELS AND TRANSVERSALS. (With Diagram.) By R. WYKE BAYLISS, M.A.	443
THE AIMS OF THE DIRECT METHOD OF TEACHING LATIN. By C. L. MAINWARING, B.A.	446
THE CORRELATION OF THE TEACHING OF MATHEMATICS AND GEOGRAPHY. By B. C. WALLIS, B.Sc., F.R.G.S.	448
PERSONAL PARAGRAPHS. By ONLOOKER	450
SCIENCE IN GIRLS' SCHOOLS	452
By Miss L. M. FAITHFULL, M.A. | Miss EDITH S. LEES | Miss ROSE STERN, B.Sc.	
Miss IDA FREUND | Miss HELENA L. POWELL | Miss FLORENCE STORR, B.Sc.	
Miss F. GADESSEN, M.A., and | LADY RÜCKER | Miss MARY SPALDING WALKER, B.A.	
Miss S. FROOD, Nat. Sc. Tripos | Mrs. W. N. SHAW | Mrs. JESSIE WHITE, D.Sc.	
R. HENRY JONES, M.Sc. | Prof. ARTHUR SMITHELLS, F.R.S. | JOHN WILSON, M.Sc.	
Miss CHARLOTTE L. LAURIE | Miss IDA E. SOUTHERDEN, M.A., and Miss EVELYN MINÔT	
Miss E. M. LEAHY, M.A.	
A SYSTEM OF SCHOOL-LEAVING CERTIFICATES ; with Special Reference to Scotland. By J. STRONG...	465
HISTORY AND CURRENT EVENTS	466
ITEMS OF INTEREST: GENERAL; SCOTTISH; IRISH; WELSH	466
AN INTERMEDIATE COURSE OF PHYSICS	471
TO THE HEART OF YOUTH	471
THEORY AND HISTORY OF EDUCATION	472
REVIEWS OF RECENT SCHOOL BOOKS AND APPARATUS	473
EDUCATIONAL BOOKS PUBLISHED DURING OCTOBER, 1912	477
CORRESPONDENCE :	
The Psychology of Reading. By W. J. JARVIS	479
Apparatus for Supporting Lenses, Mirrors, Prisms, and Screens. (Illustrated.) By Dr. T. J. BAKER ...	479
Right- and Left-Handedness. By E. A. EDEN, M.A., B.Sc.	480
Geometrical Figures. (With Diagram.) By J. HART-SMITH, A.R.C.S.	480
The External Side of the University of London. By PAGANUS	480
The Riccardi Press Edition of "Virgil." By PHILIP LEE WARNER	480

London

MACMILLAN AND CO., LIMITED

NEW YORK: THE MACMILLAN COMPANY

1912

"QUICKER THAN THOUGHT" MOVEMENTS ANALYSED BY CINEMATOGRAPHY

THIS is a new film of marvellous instructive value. Why not bring it before your scholars together with other films of unquestioned interest? We can arrange demonstrations at reasonable fees in the schoolroom or lecture hall.

Address :

THE SCIENTIFIC AND EDUCATIONAL FILM DEPT.
Messrs. PATHÉ FRÈRES' CINEMA, LTD.,
31 and 33, CHARING CROSS ROAD, LONDON, W.C.

Telegrams—"PHONOFILM," London.

Telephone—3239 Gerrard.

By Royal Warrant  to H.M. the King.

POLISHED FLOORS. RONUK, Ltd.

are prepared to Estimate for the Polishing and the maintenance of all kinds of floors in

SCHOOLS,
PRIVATE HOUSES AND INSTITUTIONS.

Write for Pamphlet.

Manufacturers of "RONUK"
SANITARY POLISH.

"RONUK" Ltd., Head Office and Factory,
PORTSLADE, near BRIGHTON.

Depôts—LONDON, 16, South Molton Street, W.
MANCHESTER, 285, Deansgate.

SCHOOL SCIENCE AND MATHEMATICS

A Monthly Journal for Science and Mathematics Teachers

Is the only magazine published in the English Language devoted exclusively to the pedagogy and practice of science and mathematics teaching. It gives new ideas and methods of scientific and mathematical instructions — practical articles on the teaching of science and mathematics. Suggestive, illustrated descriptions of apparatus, experiments, laboratory equipment and plans. Short, newsy, helpful notes on the progress in science and mathematics. It is the official organ of many science and mathematics teachers' associations.

EIGHT DEPARTMENTS:

BOTANY, CHEMISTRY, EARTH SCIENCE,
MATHEMATICS, PROBLEMS, PHYSICS,
SCIENCE QUESTIONS AND ZOOLOGY.

10/6 Per Year. Post Free. 1/3 Per Copy.

SCHOOL SCIENCE AND MATHEMATICS,
2059 E. 72nd PLACE, CHICAGO, ILL.

THE BEST DICTIONARY.

STORMONTH'S ENGLISH DICTIONARY.

I. School and College Edition. Crown 8vo, 1,080 pp., 5s. net.
 II. Handy School Edition. 16mo, 7d. net.

STORIES OF THE ENGLISH FOR SCHOOLS, by "F."
 Vol. I.—FOR JUNIOR SCHOLARS.—From the Coming of the English to the Armada. Illustrated, 1s. 6d.
 Vol. II.—FOR SENIOR SCHOLARS.—The Struggle for Power and Greater England. Illustrated, 1s. 6d.

Scotsman:—"If history can be given a form likely to make it palatable to young folks, 'F.' has succeeded in doing so in these 'Stories of the English.' It is no exaggeration to say that the book represents not only a masterpiece in literature for children, but a work of no slight value for the national good."

THE STORY OF THE WORLD.

Adopted by the London County Council Education Committee.

THE STORY OF THE WORLD. In Five Books. By M. B. SYNGE, Author of "Stories from European History," &c., &c. Coloured Frontispiece, numerous Illustrations and Maps. Book I.—On the Shores of the Great Sea, 1s. 4d. Book II.—The Discovery of New Worlds, 1s. 6d. Book III.—The Awakening of Europe, 1s. 6d. Book IV.—The Struggle for Sea Power, 1s. 9d. Book V.—Growth of the British Empire, 2s.

(Prize Edition) Complete in Two Volumes, 3s. 6d. net each.

Uniform with the above.

THE WORLD'S CHILDHOOD. In Two Books.

1. Stories of the Fairies. 10d.
2. Stories of the Greek Gods and Heroes. 10d.

With numerous Illustrations by BRINSLEY LE FANU.

BLACKWOODS' LITERATURE READERS.

Edited by JOHN ADAMS, M.A., B.Sc., F.C.P.,

Professor of Education in the University of London.

Book I. 228 pp. Price 1s. Book III. 303 pp. Price 1s. 6d.
 Book II. 275 pp. Price 1s. 4d. Book IV. 331 pp. Price 1s. 6d.

BLACKWOODS' ILLUSTRATED CLASSICAL TEXTS.

With or without Vocabulary. From 1s. 6d. Full List on application.

Cæsar—Gallic War, Books I.—III. **Ovid—Metamorphoses (Selections).**

Cæsar—Gallic War, Books IV., V. **Xenophon—Anabasis I., II.**

Cæsar—Gallic War, Books VI., VII. **Homer—Odyssey, Book VI.**

New Volume.—**CICERO—Select Letters.**

A FIRST LATIN READER. With Notes, Exercises, and Vocabulary.

By K. P. WILSON, M.A., Fettes College. Crown 8vo, 1s. 6d.

FIRST LATIN SENTENCES AND PROSE. With Vocabulary. By

K. P. WILSON, M.A. 2s. 6d. Also in Two Parts, 1s. 6d. each.

LOWER LATIN PROSE. By K. P. WILSON, M.A. 2s. 6d.

LOWER LATIN UNSEENS. Selected, with Introduction, by W.

LOBBAN, M.A., Classical Master, Girls' High School, Glasgow. 2s.

BLACKWOODS' ENGLISH CLASSICS.

SCOTT—MARMION; MACAULAY—LIFE OF JOHNSON; GOLDSMITH—DESERTED VILLAGE; &c., &c., &c.
 From 1s. 6d.

Full List on application

A HISTORY OF ENGLISH LITERATURE. By J. L.

ROBERTSON, M.A. 3s. And in 3 parts, 1/4 each part.

OUTLINES OF ENGLISH LITERATURE. By the same. 1s. 6d.

ENGLISH EXERCISES. For Junior and Senior Classes. By

the same. 1s. Adopted by the L.C.C. Education Committee.

ELEMENTARY GRAMMAR AND COMPOSITION. 1s.

PARAPHRASING, ANALYSIS, AND CORRECTION OF

SENTENCES. By D. M. J. JAMES, M.A. 1s. Also in Two Parts,

6d. each.

THE SCHOOL ANTHOLOGY (Chaucer to the Present Day). By

J. H. LOBBAN, M.A. In Two Parts, 1s. net each. One Volume, 2s.

net. Prize Edition, 5s.

THE TUTORIAL HANDBOOK OF FRENCH COMPOSITION.

By ALFRED MEICHER, L.-ès-L., Lecturer on French Language and

Literature in the University of St. Andrews. 3s. 6d.

ALL FRENCH VERBS IN TWELVE HOURS. By A. J. WYATT,

M.A. 1s.

A FIRST BOOK OF "FREE COMPOSITION" IN FRENCH.

By J. EDMOND MANSION, B.-ès-L., Royal Académical Institution,

Belfast. 1s. Adopted by the L.C.C. Education Committee.

A PRACTICAL GERMAN GRAMMAR, READER AND WRITER.

By LOUIS LUBOVIC, Ph.D. Part I.—Elementary. 2s. Part II. 3s.

A GERMAN READER FOR TECHNICAL SCHOOLS. By E. F.

SECKLER. 2s.

OUTLINES OF GERMAN LITERATURE. For the Use of Schools.

By JOHN G. ROBERTSON, Ph.D., Professor of German in the

University of London. 3s. 6d. net.

SPARTANERJÜNGLINGE. A Story of Life in a Cadet College.

Edited, with Vocabulary and Notes, by J. MORRISON, M.A. 2s.

A SPANISH GRAMMAR. By WILLIAM A. KESSEN. 3s. 6d.

FORTY ELEMENTARY LESSONS IN CHEMISTRY. By W. L.

SARGANT, M.A. Illustrated. 1s. 6d.

HIGHER ARITHMETIC. 128 pp. Paper, 6d.; Cloth, 8d. With

Answers, cloth, 11d. Answers separately, 3d.

Full Educational Catalogue sent post free on application to—

WILLIAM BLACKWOOD & SONS,
 45, George St., Edinburgh; and 37, Paternoster Row, London, E.C.

LONDON
UNIVERSITY
DEGREES

OPEN TO BOTH SEXES
 Without
 Conditions of Residence.



For each of the Last Nine Years,
 ABOVE

ONE
 THOUSAND
 STUDENTS
 OF
 University
 Correspondence
 College

HAVE PASSED

LONDON UNIVERSITY
 EXAMINATIONS.

Graduates of other Universities, and those who have passed certain specified examinations, e.g., The Cambridge Senior Local, &c., are exempted from the Matriculation Examination.

FREE GUIDES

TO MATRICULATION, INTER. ARTS.
 INTER. SCIENCE, B.A., B.Sc., and B.D.
 EXAMINATIONS
 OF LONDON UNIVERSITY

Post Free from THE SECRETARY, No. 16, Burlington House, Cambridge, or from the London Office of University Correspondence College, 32, Red Lion Square, Holborn, W.C.

TEACHERS' DIPLOMAS.

The COLLEGE OF PRECEPTORS holds Examinations of Teachers for the Diplomas of Associate, Licentiate, and Fellow of the College in London, Birmingham, Bristol, Dublin, Leeds, Liverpool, Manchester, Newcastle-on-Tyne, and Plymouth. The Associateship and Licentiate Examinations are held twice a year, viz., in the Summer and Winter Vacations. The Fellowship Examination is held only in the Winter Vacation. The Theory and Practice of Education is an obligatory subject for each grade. For Regulations apply to the SECRETARY, College of Preceptors, Bloomsbury Square, London, W.C.

PRELIMINARY EXAMINATIONS

FOR MEDICAL, DENTAL, AND PHARMACEUTICAL STUDENTS.

The COLLEGE OF PRECEPTORS holds Preliminary Examinations in March, June, September, and December. All the Examinations are held in London, Birmingham, Bristol, Cardiff, Edinburgh, Leeds, Liverpool, Manchester, Newcastle-on-Tyne, and Nottingham. For the June and December Examinations there are other Centres, including Blackpool, Brighton, Cheltenham, Croydon, Exeter, Glasgow, Inverurie, Margate, Plymouth, Portsmouth, Sheffield, Southampton, Southport, Sunderland, and York. In March there is a Centre at Inverness, and in September at Aberdeen. For Regulations, apply to the SECRETARY, College of Preceptors, Bloomsbury Square, London, W.C.

UNIVERSITY COLLEGE, READING.

Principal—W. M. CHILDS, M.A.

Halls of Residence for Women:
ST. ANDREW'S HALL. ST. GEORGE'S HOSTEL.

EDUCATION COURSE, SECONDARY DIVISION.

(Recognised by the Board of Education and the Cambridge Syndicate.)

Lecturer in Education, and Tutor:

Miss LUCY ASHCROFT, Newnham College, Cambridge; M.A. Dublin.

A Year's Course for Women Students, in preparation for the Cambridge Teacher's Certificate, will begin on January 16, 1913. The Course includes Lectures on the Theory and History of Education by Miss Lucy Ashcroft, M.A., Professor W. G. de Burgh, M.A., and Mr. A. W. P. Wolters, M.A.; also lectures on special subjects, including the teaching of English, History, Geography, Mathematics, Science, and Drawing, by Professors and Lecturers at the College, together with tutorial instruction, criticism lessons, and visits of observation. Practice in Teaching is provided in the chief Girls' Schools of the district. The College offers facilities for students wishing to specialise in Gardening, Fine Art, Crafts, or Music. Prospectuses and further information may be obtained from the Registrar.

EXHIBITIONS.

One Exhibition, entitling to remission of the tuition fee of £20 for the Course, or two Exhibitions, entitling to partial remission of the fee, are offered for competition and are open to graduates. Entries should be sent in by December 10.

FRANCIS H. WRIGHT, Registrar.

UNIVERSITY OF LONDON.

KING'S COLLEGE.

DEPARTMENT FOR TRAINING TEACHERS FOR SECONDARY SCHOOLS.

Theory, Practice, and History of Education: J. W. ADAMSON, B.A., Professor of Education (Head of the Department).
Psychology: W. BROWN, M.A., Lecturer.

The Course, which includes Practical Work in Secondary Schools, extends over one academical year, beginning in OCTOBER or JANUARY. It is suitable for those who are preparing to take the Teachers' Diploma of the University of London.

The Fee is £20 for the year if paid in advance, or Eight Guineas per Term (Three Terms in the year). TWO SCHOLARSHIPS of £20 each for One Year, tenable from October 1, 1912, are offered to suitable Candidates (Men) who are Graduates of a British University. Application should be made to Prof. ADAMSON, King's College, Strand, W.C.

BIRKBECK COLLEGE

Breams Buildings, Chancery Lane, E.C.

Principal: G. Armitage-Smith, M.A., D.Lit.

UNIVERSITY OF LONDON.

COURSES OF STUDY (DAY AND EVENING)

for the Degrees of the University in

ARTS, SCIENCE, ECONOMICS, LAWS,

Under RECOGNISED TEACHERS of the University.

Latin, Greek, English, French, German, Italian, Geography, History, Logic, Economics, British Constitution, Mathematics (Pure and Applied), Chemistry, Physics, Botany, Zoology, Geology and Mineralogy, and Law.

Matriculation and Preliminary Courses. School of Art.

Particulars on application to the Secretary.

UNIVERSITY OF BRISTOL.

Prospectuses and full Particulars of any of the following will be forwarded on application:—

FACULTY OF ARTS.

FACULTY OF SCIENCE, including Agricultural Science.

FACULTY OF MEDICINE.—Medicine and Surgery; Dental Surgery; Public Health.

FACULTY OF ENGINEERING.—Civil, Mechanical, Electrical, Motor Car Engineering.

SECONDARY TRAINING DEPARTMENT.

DAY TRAINING COLLEGES (Men and Women).

HALLS OF RESIDENCE.

SCHOLARSHIPS AND BURSARIES.

EVENING CLASSES.

ATHLETICS.—The University Athletic Ground is 12 acres in extent, and provision is made for Cricket, Football, Bowls, Hockey, and Tennis, in the last two cases for women as well as for men Students.

JAMES RAFTER, Registrar.

UNIVERSITY OF LONDON.

GOLDSMITH'S COLLEGE.

TRAINING DEPARTMENT (for Men and Women).

There will be a large number of Vacancies for Students (TWO-YEAR and CERTIFICATED) in September, 1913. There is ample Hostel accommodation for Women, and some for Men; the remaining Men-Students live in recognised lodgings.

A first list of provisionally accepted applicants will be prepared at an early date.

Full particulars and application forms can be obtained from the WARDEN, Goldsmith's College, New Cross, S.E.

ROYAL HOLLOWAY COLLEGE FOR WOMEN.

(UNIVERSITY OF LONDON).

The LENT TERM begins on January 11, 1913. The College prepares Students for the London Degrees in Science and Arts.

TWELVE ENTRANCE SCHOLARSHIPS, from £50 to £60 a year, and a certain number of Bursaries of not more than £30, tenable for three years, will be offered for COMPETITION in June, 1913.

Inclusive Fee, £100 a year.

For further particulars, apply to the SECRETARY, Royal Holloway College, Englefield Green, Surrey.

CHERWELL HALL, OXFORD.

TRAINING COLLEGE FOR WOMEN SECONDARY TEACHERS.

Recognised by the Board of Education, by the Oxford University Delegacy for Secondary Training, and by the Cambridge Syndicate.

PRINCIPAL—MISS CATHERINE I. DODD, M.A., late Lecturer in Education, Manchester University.

Students are prepared for the Oxford and London Teachers' Diploma, and the Cambridge Teachers' Certificate.

Fees for the Course from £65. Scholarships of from £40 to £20 open to Students with a degree on entry. There is a Loan Fund.

BOROUGH OF PORTSMOUTH EDUCATION COMMITTEE.

GIRLS' SECONDARY SCHOOL.

APPOINTMENT OF JUNIOR FRENCH MISTRESS.

The Committee invite applications for the post of JUNIOR FRENCH MISTRESS. Residence abroad or some experience is desirable. The salary for candidates possessing a University degree or its equivalent will be at the rate of £100 per annum, rising by annual increments to £110.

Applications, accompanied by copies only of three recent testimonials, must be forwarded to the SECRETARY to the Committee at the Offices for Higher Education, the Municipal College, Portsmouth, so as to be received not later than December 5th.

Further particulars and application form will be forwarded on receipt of a stamped addressed envelope.

DUSTLESS & HYGIENIC SCHOOLS

On all School, Laboratory, &c., Floors and Linoleums of every description

USE FLORIGENE

(A Registered Name suggested by FLOOR-HYGIENE)

VERY EARLY in XMAS VACATION for best results.

"Florigene" is an aid to the prevention of throat and other diseases, and has been awarded the BRONZE MEDAL of the ROYAL SANITARY INSTITUTE.

It costs little, and is easily applied. Not sticky—the ordinary daily dry sweeping alone required—scrubbing being optional.

A well-known COUNTY SCHOOL MEDICAL OFFICER reported 18th March, 1912, to his Education Committee on "Florigene" as follows:—

"I cannot help feeling, however, that as a matter of sanitation, as well as a matter of economy, it would be very desirable to utilise in some of the larger schools one of those substances now sold for the diminution of dust. I may call your attention to the fact that I presented a Report to your Committee on the use of the preparation known as 'Florigene' and I should be glad to see the larger Schoolrooms and Classrooms treated with this substance, as is customary now in so many Secondary Schools, so that less dust would be raised by the ordinary Educational use of the Premises."

"Florigene" is also strongly recommended by other expert authorities.

"Florigene" has been used for many years on the floors of The Royal Naval Colleges and other important Government Buildings; also in numerous Colleges, Schools, Laboratories, &c., throughout the United Kingdom and Colonies with approval.

It is IMPORTANT to NOTE that

ONE APPLICATION of "Florigene" effectively allays the dust and dirt for **2 to 12 months**, according to the traffic, not only **during each sweeping** (without sprinkling of any kind), but **also throughout all the intervening periods**—which is even of **greater hygienic importance.**

Send for particulars, Medical Reports and Testimonials to the Sole Manufacturers—

THE "DUST-ALLAYER" CO.

165, Queen Victoria Street, London, E.C.

Contractors to Admiralty, War Office, H.M. Office of Works, L.C.C., &c.

THE JOINT SCHOLASTIC AGENCY,

23, Southampton Street, Bloomsbury Square, W.C.
Managed by a Committee of Representatives of the following Bodies
HEAD MASTERS' CONFERENCE.

INCORPORATED ASSOCIATION OF HEAD MASTERS.
COLLEGE OF PRECEPTORS. TEACHERS' GUILD.
INCORPORATED ASSOCIATION OF ASSISTANT MASTERS.

ASSOCIATION OF TECHNICAL INSTITUTIONS.
ASSOCIATION OF PREPARATORY SCHOOLS.
WELSH COUNTY SCHOOLS.

REGISTRAR ... MR. E. A. VIRGO.

The object of this Agency is to render assistance at a minimum cost to Masters seeking appointments. The lowest possible fees are therefore charged.

PROSPECTUS WILL BE SENT ON APPLICATION.

JOINT AGENCY FOR WOMEN TEACHERS,

74, GOWER STREET, LONDON, W.C.

(Under the management of a Committee appointed by the Teachers Guild, College of Preceptors, Head Mistresses' Association, Association of Assistant Mistresses, and Welsh County Schools' Association.)

This Agency has been established for the purpose of enabling Teachers to find work WITHOUT UNNECESSARY COST. All fees have therefore been calculated on the LOWEST BASIS to cover the working expenses.

No Registration fees are charged to Members of the above Associations and their commissions are reduced.

Hours for Interviews: 11 a.m. to 1 p.m., and 3 to 5 p.m.

Saturdays, 11 a.m. to 1 p.m., and 2 to 3 p.m.

When possible special appointments should be arranged.

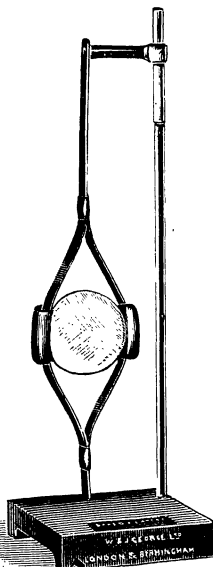
Registrar—Miss ALICE M. FOUNTAIN.

ILLUMINATED ADDRESSES.

EDWARD MORTON & FOSTER NEWBY,
14, New Street, BIRMINGHAM.

IMPROVED LENS HOLDER

DR. T. J. BAKER'S PATENT.



All workers in a physical laboratory have felt the need for a holder which will grip a lens of any size with perfect security and hold it, within wide limits, at any height above the table or optical bench.

Any lens up to 3 inches diameter is held firmly by this contrivance, and the range of Vertical Movement is very considerable. It is obvious that the instrument may also be used for holding mirrors or screens, and is, in short, a most useful adjunct to an optical bench or for general optical purposes. There are no loose parts to be mislaid, and the fixing of a lens occupies a second only; the base is arranged for use with optical bench.

Special Features.

Will take any size lens up to 3-in.
Easily adjusted to any height.
No loose parts.
Simple in construction.

Price 2/6

Write for descriptive Circular.

W. & J. GEORGE, Ltd.

Manufacturers of Scientific Apparatus,
GREAT CHARLES ST., BIRMINGHAM.

Telephone: Central, 514. Telegraphic Address: "Chemistry," Birmingham.

BLACKIE & SON'S NEW LIST

A Historical Work of First Importance.

THE GROUNDWORK OF BRITISH HISTORY.

BY

GEORGE TOWNSEND WARNER, M.A.,

Sometime Fellow of Jesus College, Cambridge; Master of the Modern Side in Harrow School; Author of "A Brief Survey of British History," &c.

AND

C. H. K. MARTEN, M.A.,

Balliol College, Oxford; Assistant Master at Eton College.

With Maps, Time Charts, and full Index.

764 pp., super-crown 8vo, 6s. Also in Two Parts, 3s. 6d. each.

Mr. G. M. Trevelyan, in the *Morning Post*, says: "It is to be hoped that this book will be widely used in the upper and middle classes of our schools. The want of a good school history on a level with modern standards of historical knowledge and educational method is a very real want indeed. The present volume is neither dull nor vulgar. It is written by scholars and gentlemen, who are yet thoroughly modern in their conception of how history should be taught—a conception based on experience."

ELECTRICITY

and its Practical Applications.

By **MAGNUS MACLEAN, D.Sc., M.Inst., C.E., M.I.E.E.**, Professor of Electrical Engineering in the Royal Technical College, Glasgow. Demy 8vo, cloth boards, **10s. 6d.** net.

A new work for engineers and science students.

BLACKIE'S LITTLE FRENCH CLASSICS.

Representing all important French authors from Montaigne to Bourget. 100 Volumes, **4d., 6d., 10d.**

Complete List on application.

BLACKIE'S ENGLISH TEXTS.

6d. each. Blue limp cloth covers. Over 100 volumes. To be used in correlation with the study of **English Literature and History.**

List on application.

A NEW SPANISH READER ON MODERN LINES.

Edited by **R. D. MONTEVERDE, B.A. (Madrid)**, Examiner to the London County Council; Lecturer at the Birkbeck College, West Ham Municipal Technical Institute, St. George's College, &c. **2s. 6d.** *[Just published.]*

SCIENTIFIC METHOD.

ITS PHILOSOPHY AND ITS PRACTICE. By **F. W. WESTAWAY, B.A.** Super crown 8vo, **6s.** *[Just published.]*

This résumé of philosophic principles and review of the development of Scientific Method should be found invaluable by all who are interested in the methodical procedure of scientific investigation.

WORDS: THEIR ORIGIN AND USE.

A Correlated Scheme of Spelling, Derivation, Reading, Dictation, and Composition. By **F. W. CHAMBERS** and **A. J. KER.** In Two Books, each with a companion Teachers' Book. **8d.** each. Teachers' Books, **1s.** net each.

SYSTEMATIC INORGANIC CHEMISTRY

From the Standpoint of the Periodic Law.

A TEXTBOOK FOR ADVANCED STUDENTS. By **R. M. CAVEN, D.Sc.**, and **G. D. LANDER, D.Sc.** **6s.** net.

A TEXTBOOK OF ORGANIC CHEMISTRY.

English Translation from the German of **A. BERNTHSEN, Ph.D.** New Edition. Edited by **J. J. SUDBOROUGH, Ph.D., D.Sc., F.I.C.**, Professor of Chemistry in the University College of Wales, Aberystwyth. **7s. 6d.** net.

THE STUDY OF PLANT LIFE FOR YOUNG PEOPLE.

By **MARIE C. STOPES, D.Sc.**, &c. Second Edition, fully illustrated. Price **3s. 6d.**

A COURSE OF PHYSICS.

PRACTICAL AND THEORETICAL.

By **CHARLES H. DRAPER, B.A., D.Sc.** Author of "Heat and the Principles of Thermodynamics," "Light, Heat, and Sound," &c. Super crown 8vo, 424 pages. Illustrated. Price **4s. 6d.** *[Just published.]*

TILLAGE, TRADE, AND INVENTION.

AN OUTLINE OF INDUSTRIAL HISTORY.

By **GEORGE TOWNSEND WARNER.** Crown 8vo, cloth, **2s.** *[Just published.]*

FIRST ENGLISH EXERCISES.

By **FRANK JONES, B.A.**, Assistant Master, King Edward's School, Aston, Birmingham; Lecturer in English at the Birmingham and Midland Institute; Joint Author of Scott and Jones's "Latin Course." **1s. 6d.**

Reprinted from "A First English Course." For class use where the master prefers to give the grammatical exposition orally.

 Prospectuses giving full particulars of above books will be sent post free on application.

BLACKIE & SON, LTD., 50, OLD BAILEY, LONDON.
GLASGOW AND BOMBAY.

OXFORD UNIVERSITY PRESS

THE OXFORD BOOK OF VICTORIAN VERSE.

Chosen by Sir ARTHUR QUILLER-COUCH. In Two Editions. Crown 8vo, 6s. net; F'cap 8vo, on Oxford India paper, 7s. 6d. net. Also in leather bindings at higher prices.

Uniform with the Oxford Book of English Verse and the Oxford Book of Ballads by the same Editor.

SHAKESPEARE.

Edited by G. S. GORDON. 1s. net each.
HAMLET, CORIOLANUS, MIDSUMMER NIGHT'S DREAM, AS YOU LIKE IT, THE TEMPEST.

ANCIENT AND MEDIAEVAL LEGENDS.

CELTIC STORIES. By EDWARD THOMAS. 2s.

NORSE TALES. By EDWARD THOMAS. 2s.

GREEK LEGENDS. By M. HAMILTON. 2s.

SELECTIONS FROM MALORY. By H. WRAGG. 2s.

GRADUATED PASSAGES FOR REPRODUCTION.

Selected and arranged by M. L. BANKS. 2s.

THE CONCISE OXFORD DICTIONARY.

Adapted by H. W. and F. G. FOWLER (authors of *The King's English*) from the Oxford English Dictionary. 3s. 6d. net.

THE ACTS.

Revised Version. Edited, for junior forms, by A. S. WALPOLE, with preface by H. A. JAMES. With map and illustrations. 1s. 6d.

ST. MATTHEW. ST. MARK. ST. LUKE.

By the same Editor, and uniform with the above. 1s. 6d. each.

HEBREW PROPHETS.

In the Revised Version, printed in their poetical form. Edited, with notes, by F. H. WOODS and F. E. POWELL. 4 vols. 2s. 6d. net each.

GLOUCESTERSHIRE.

By W. H. WESTON. With 42 illustrations and maps, 1s. 6d.; in a superior binding, 2s. 6d. net. (*Oxford County Histories.*)

THE STORY OF ENGLAND.

For junior forms. From the earliest times to the death of Queen Victoria. By M. O. DAVIS. With coloured maps. 3s. Separately: Part I, to the death of Elizabeth; Part II, to the death of Victoria. 1s. 9d. each.

THE MAKING OF LONDON.

By Sir LAURENCE GOMME. Illustrated. 3s. 6d. net.

THE BRITISH EMPIRE.

By A. J. HERBERTSON and R. L. THOMPSON. 2s. 6d. (*The Oxford Geographies.*)

COMPLETION OF

THE ELEMENTARY GEOGRAPHIES.

By F. D. HERBERTSON. Illustrated.

Vol. V.—NORTH AND CENTRAL AMERICA AND THE WEST INDIES. 1s. 6d.

Vol. VI.—THE THREE SOUTHERN CONTINENTS. 1s. 9d.

THE OXFORD WALL MAPS.

Edited by A. J. HERBERTSON. Drawn by B. V. DARBISHIRE. (*Complete Prospectus, with coloured facsimile on application.*)

THE OXFORD CHARTS AND OUTLINE MAPS.

Edited by A. J. HERBERTSON. 1d. net each. 9d. net for twelve of one kind. 1s. 4d. net for 25 of one kind. (*List on application.*)

INTRODUCTION TO PSYCHOLOGY.

More especially for teachers. By T. LOVEDAY and J. A. GREEN. 3s. 6d. net.

GROWTH OF MUSIC.

A Study in musical history for schools. By H. C. COLLES. Part I, from the Troubadours to J. S. Bach. 4s. net.

OXFORD JUNIOR FRENCH SERIES.

Edited by H. L. HUTTON. With questionnaire, direct method exercises, short notes in French, and French-English Vocabulary. F'cap 8vo. With or without vocabulary, 1s. per vol., unless otherwise stated.

BAZIN: Six Contes. Edited by G. H. CLARKE. 2s.

DUMAS: Aventures du Capitaine Pamphile. Edited by R. A. RAVEN.

DUMAS: La Chasse au Chastre. Edited by G. H. WADE.

ERCKMANN-CHATRIAN: Madame Thérèse. Edited by S. TINDALL.

HUGO: Cosette. From Les Misérables. Edited by MARC CEPPI.

HUGO: Gavroche. From Les Misérables. Edited by MARC CEPPI.

MÉRY: Deux Contes. Edited by T. R. N. CROFTS.

NOUSSANNE: Le Château des Merveilles. Edited by R. J. E. BÉÉ.

SOUILLÉ: L'Enfant des Grenadiers, &c. Edited by H. L. HUTTON.

Other volumes in preparation.

A NEW FRENCH GRAMMAR.

Based on the recommendations of the Joint Committee on Grammatical Terminology. By E. A. SONNENSCHNEIN. 2s. 6d.

OUTLINES OF GERMAN GRAMMAR.

By A. E. WILSON. 1s. 6d.

WIELAND DER SCHMIED.

Adapted from the German Saga, and edited with questionnaire, sentences for retranslation, notes, and German-English vocabulary. By A. E. WILSON. 1s. 6d.

DAS ERSTE JAHR DES DEUTSCHEN UNTERRICHTS.

A complete First German Course, with text in ordinary spelling and also in phonetic transcription. By D. L. SAVORY. 2s. 6d. (First Year.)

OXFORD ELEMENTARY LATIN READERS.

By W. D. LOWE. Simplified and Graduated Selections with Historical Introductions, Notes, Exercises, Vocabulary, etc.

NEW VOLUMES.

SELECTIONS FROM CICERO. 1s. 6d.

SELECTIONS FROM OVID. 1s. 6d.

COMPANION TO ROMAN HISTORY.

By H. STUART JONES. With many illustrations, maps, and plans. 15s. net.

LINGUA LATINA SERIES.

General Editors, W. H. D. ROUSE and S. O. ANDREW.

PRIMUS ANNUS. By W. L. PAINE and C. L. MAINWARING. With an introduction by S. O. ANDREW. 2s.

DECEM FABULAE PUERIS PUELLISQUE AGENDAE. By W. L. PAINE and C. L. MAINWARING, and Miss E. RYLE. With an Introduction by W. H. D. ROUSE. 1s. 6d.

A NEW LATIN GRAMMAR.

Based on the recommendations of the Joint Committee on Grammatical Terminology. By E. A. SONNENSCHNEIN. 2s. 6d.

THE OXFORD BOOK OF LATIN VERSE.

From the earliest fragments to the end of the 5th Century A.D. Chosen by H. W. GARROD. Containing 384 Pieces, with 51 English Translations and Imitations, an Introduction and Notes. 6s. net; on Oxford India paper, 7s. 6d. net. Also in leather bindings at higher prices. *Uniform with the Oxford Books of French, German, and Italian Verse.*

SELECTIONS FROM HERODOTUS.

Adapted and graduated by W. D. LOWE. With notes and vocabulary. 2s. 6d.

ELEMENTARY GREEK GRAMMAR.

By E. E. BRYANT and E. D. C. LAKE. 2s. 6d.

ENGLISH LITERATURE AND THE CLASSICS.

(GILBERT MURRAY, J. A. STEWART, G. S. GORDON, J. S. PHILLIMORE, A. C. CLARK, H. W. GARROD, S. G. OWEN, R. J. E. TIDY, A. D. GODLEY.) Collected by G. S. GORDON. 8vo. 6s. net.

Select List of Educational Works, List of Books set for various Examinations, and Complete Catalogue (160 pages) post free.

London: HENRY FROWDE, Oxford University Press, Amen Corner, E.C.

EDINBURGH, GLASGOW, NEW YORK, TORONTO, MELBOURNE, and BOMBAY.

Cambridge University Press

A Source Book of English History.

For the Use of Schools. Edited by ARTHUR D. INNES, M.A. Volume 1, 597-1603 A.D. With 31 illustrations. Crown 8vo. 4s 6d

This book consists of a series of extracts taken entirely from the work of contemporary writers. It is intended for use in schools, and its primary purpose is to attract the interest of the student by presenting history to him as it presented itself to the men of the time. The extracts are illustrated throughout by reproductions of authentic portraits, by illustrations taken from old MSS., and by photographs of historic scenes.

Key to the Exercises in Murison's English Composition.

By W. MURISON, M.A. Crown 8vo. 4s 6d net

The Preface to Dryden's Fables.

Edited by W. H. WILLIAMS, M.A. Extra fcap 8vo. 10d English Literature for Schools Series

Plato's Ion.

Edited, with introduction and notes, by J. M. MACGREGOR, B.A. Extra fcap 8vo. 2s. Pitt Press Series

A History of Geographical Discovery in the Seventeenth and Eighteenth Centuries.

By EDWARD HEAWOOD, M.A. With 59 illustrations. Crown 8vo. 12s 6d net. Cambridge Geographical Series

A descriptive list of some of the educational publications of the Cambridge University Press, together with a complete educational catalogue, will be sent post-free on application

London, Fetter Lane

CAMBRIDGE UNIVERSITY PRESS

C. F. Clay, Manager

Erckmann - Chatrian : Waterloo.

Edited, with introduction and notes, by A. R. ROPES, M.A. Re-issue with vocabulary. 2s

The text of this edition, which is complete and unabridged, is taken from the small illustrated edition of Messrs. J. Hetzel and Co., by arrangement with Messrs. Hachette and Co. The present edition contains, in addition to the text, a plan of the Battle of Waterloo, a map of the district, an introduction of seven pages, eighty pages of notes, and a vocabulary of fifty-six pages.

Exercises on Erckmann-Chatrian's Waterloo.

By A. WILSON-GREEN, M.A. 1s This can be used either with the above edition or with Messrs. Hachette's edition, the pagination of the text being the same in both.

About : Le Roi des Montagnes.

Edited, with introduction and notes, by A. R. ROPES, M.A. Re-issue with vocabulary. 2s

Saintine : Picciola.

Edited, with introduction and notes, by A. R. ROPES, M.A. Re-issue with vocabulary. 2s

Hauff : Die Karavane.

Edited, with introduction and notes, by A. SCHLOTTMANN, Ph.D. Re-issue with vocabulary. 3s

Statics.

Including Hydrostatics and the elements of the theory of elasticity. By HORACE LAMB, Sc.D., LL.D., F.R.S. Demy 8vo. 10s 6d net

Map Projections.

By ARTHUR R. HINKS, M.A. With 20 figures. Demy 8vo 5s net

A SELECTION OF CHRISTMAS BOOKS.

A sumptuous volume, brilliantly illustrated.

The Legends of King Arthur and His Knights.

Compiled and arranged by the late Sir JAMES KNOWLES, K.C.V.O., with addendum to preface by Lady Knowles. With original illustrations by Lancelot Speed. Cloth gilt, with picture wrapper, 6/- net.

A work that has come to be regarded as indispensable to such of the youth and manhood of the English-speaking race as are charmed by the chivalry and romance of the Arthurian legends. Nothing could excel in beauty and appropriateness the coloured and black and white illustrations that embellish the work. It is a superb presentation volume. A noteworthy work that every one should read.

The Great Sea Horse.

BY ISABEL ANDERSON.

Illustrated with 24 full-page Coloured Plates by JOHN ELLIOTT, and decorative designs by FRANK DOWNEY. Cloth gilt, gilt top, art wrapper, 6/- net.

A charming volume of fairy tales of fantasy and gracefulness. It is in a way a nature book for young folks, wherein the land fairies mingle with the flowers and trees, and the water fairies with the shells and fishes. The stories are nicely told, the pictures are exquisite, and the whole forms a book of real beauty and distinction.

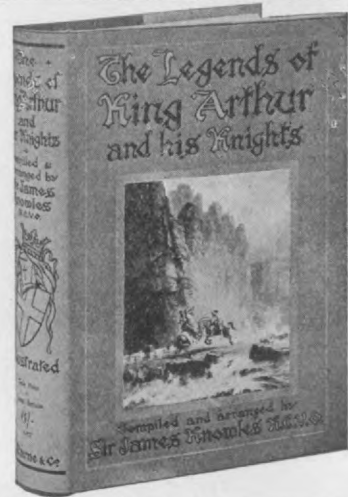
A NEW AND CHARMING EDITION.

A Little Princess.

By Mrs. FRANCES HODGSON BURNETT.

Small medium 8vo. cloth gilt, in artistic binding, 3/6 net. One of Mrs. Burnett's most successful stories.

"No living writer known to me can seize the varied witcheries of childhood with more genuine distinction than Mrs. Burnett."—*Sphere*.



Dewdrops from Fairyland.

BY LUCY M. SCOTT (a child-writer of ten years old).

Exquisitely illustrated in Colour and Black-and-White by A. DUNCAN CARSE, and elegantly bound in cloth, gilt top. 3/6 net.

The magic music of Fairyland interpreted by a child for children. Perfect in their conception, language, and rhythm, the tales are pure little gems that would do credit to a grown-up experienced writer. No plea of infancy is advanced.

Fully Illustrated Colour Lists of Gift Books may be obtained on application to

FREDERICK WARNE & CO., Chandos House, Bedford Street, Strand, LONDON.

ORA MARITIMA SERIES.

Edited by Prof. E. A. SONNENSCHN, D.Litt. (Oxon.).

Each of the Readers in the Series (illustrated with pictures and maps) consists of a continuous story written in the language to be studied, and so constructed as to form the basis of a systematic study of Grammar. They thus combine the interest and vitality of a real story with a thorough training in the fundamentals of the language concerned.

The terminology recommended by the Joint-Committee on Grammatical Terminology, in their Report of 1911, is adopted in the new volume *En Vacances* and the new edition of *Am Rhein*.

NEW VOLUME NOW ON SALE.

EN VACANCES. A French Story for Beginners. With Grammar and Exercises on the Elements of the regular Accidence. By M. I. EBBUTT, M.A., and ANATOLELE DU, Professeur Agrégé de l'Université. Cloth 8vo, price 2s.

This volume has been added to the Requisition List for Senior Departments by the London County Council.

"The merits of the Ora Maritima Series need no commendation from us. The subject of *En Vacances* is the life of a French family during the summer holidays, and we think the authors may rest assured that their work in no ways falls short of the high standard which the earlier volumes of the series have set."—*Secondary Education*, March 15th, 1912.

"A thoroughly intelligent and interesting method of teaching the French language."—*The Guardian*, January 13th, 1912.

PREVIOUS VOLUMES.

"After twenty years' experience of teaching Latin to small boys, I have found Professor Sonnenschein's *Ora Maritima* and *Pro Patria* by far the best introductions to the language available for use with British boys. The text is thoroughly virile, breezy, and instructive, and it contains now and again touches of dry humour which appeal irresistibly to youngsters, and give quite a holiday atmosphere to the books. The exercises present none of those bugbears in the shape of unexplained constructions so disheartening to boys and so aggravating to masters. I can most warmly recommend these books to all who desire to teach Latin as a living language."—J. K. BLACKWOOD, Clarye, Belfast.

1. **ORA MARITIMA.** A Latin Story for Beginners. With Grammar and Exercises on the Elements of the regular Accidence. By the Editor of the Series. Seventh Edition, 1912. Cloth 8vo, price 2s

Adopted as a prescribed subject for the Cambridge Preliminary Local Examination of 1912.

"*Ora Maritima* is just A1, clearly right in conception and admirably executed."—P. A. BARNETT, H.M. Chief Inspector for the Training of Teachers.

"The most attractive introduction to Latin that has come under my notice, and I have seen most of them in the Secondary Schools which I inspect."—JOHN KERR, LL.D., late H.M. Chief Inspector of Schools and Training Colleges in Scotland.

2. **SUPPLEMENTARY EXERCISES TO ORA MARITIMA.** By Miss M. L. STAFFORD SMITH, M.A., Head Mistress of the Durham High School for Girls. Limp cover, price 1s.

3. **PRO PATRIA.** A Sequel to "*Ora Maritima*." With Grammar and Exercises to the end of the regular Accidence. By the Editor of the Series. Second Edition. Cloth 8vo, price 2s.

"We have adopted both *Ora Maritima* and *Pro Patria* in our Latin classes at Manchester Grammar School."—J. L. PATON, Manchester Grammar School.

"The books are admirable, and under the guidance of a skilful teacher their use in class is followed by excellent results."—MICHAEL E. SADLER, LL.D., Vice-Chancellor of the University of Leeds.

"I have had both books prescribed for use in our earliest standards. They were acknowledged by the committee which passed them to be unequalled for the interesting way in which they present the subject. I think no praise is too high for them."—W. G. WEDDERSPON, M.A., H.M. Inspector of Schools and Training Colleges, Burma.

4. **THE GREEK WAR OF INDEPENDENCE.** A Greek Story for Beginners on the same lines as "*Ora Maritima*" and "*Pro Patria*." With Grammar and Exercises to the end of the regular Accidence. By C. D. CHAMBERS, M.A. Cloth 8vo, price 3s.

"Felicitous in design and able in execution"—*The Journal of Education*. "It gives reality and interest to the early study of Greek."—*Educational Times*.

"We strongly recommend the book to all schoolmasters"—*The Oxford Magazine*.

5. **AM RHEIN.** A German Story for Beginners. By Professor K. WICHMANN, Ph.D. Second Edition, 1912. Cloth 8vo, price 2s.

"The adventures of Siegfried, related by Professor Wichmann in that simple and graceful narrative style to which both the story and the German language lend themselves so well, will commend themselves to the schoolboy."—*Modern Language Teaching*

The Publishers will be happy to send a free copy of any of the volumes in this series to teachers who make application for them with a view to their introduction.

KEGAN PAUL, TRENCH, TRÜBNER & CO., Ltd.,
Broadway House, Carter Lane, London, E.C.

MERTHYR TYDFIL EDUCATION COMMITTEE.

CYFARTHFA CASTLE MUNICIPAL SECONDARY SCHOOL.
The Committee require the services of SIX CLASS-TEACHERS thoroughly capable of teaching the following subjects:—

Boys' Department:—

(1) English Language and Literature, (2) Geography and History, (3) Mathematics, (4) Physics and Geometry, (5) Chemistry, (6) Latin and French. Salary £150, advancing £10 yearly to £180.

Girls' Department:—

The Committee also require the services of SEVEN CLASS-TEACHERS for the following subjects:—

(1) English Language and Literature, (2) French, (3) Geography and History, (4) Mathematics, (5) Physics and Geometry, (6) Botany, (7) Drawing. Salary £120, advancing £5 yearly to £140.

Applicants for the above appointments must be Graduates of a British University or possess equivalent qualifications approved by the Board of Education

Also Teacher of Manual Instruction and Elementary Drawing for Boys' Department. Salary £110, advancing £10 yearly to £140.

Teacher of Cookery and Laundry, Salary £80, advancing £5 annually to £110.

Teacher of Needlework, Housekeeping, and Household Hygiene. Salary £80, advancing £5 annually to £110.

Application Forms may be obtained from the undersigned on receipt of a stamped, addressed foolscap envelope, and must be returned to the Director of Education, Town Hall, Merthyr Tydfil, so as to reach him not later than 10th December, 1912.

Town Hall, Merthyr Tydfil,
22nd November, 1912.

E. STEPHENS,
Clerk to the Committee.

TETTENHALL COLLEGE, STAFFORDSHIRE.

Applications are invited for the post of Headmaster of the above School. Free Churchman, University Graduate, and Experienced Teacher required. Applications, with copies of Testimonials, should reach the Secretary to the Governors (from whom further information can be obtained) not later than the first post on Monday, 16th December.

BOOKS

Books on Educational, Scientific, Literary, Law, Medical, and all other subjects,

SECOND-HAND AT HALF PRICES!

NEW, at 25 Per Cent. DISCOUNT.

Catalogues Free. State Wants. Books Sent on Approval.

BOOKS BOUGHT: Best Prices Given.

W. & G. FOYLE, 121-123, Charing Cross Road, London.

The Educational Times and Journal of the College of Preceptors.

PUBLISHED MONTHLY. Price 6d., by Post 7d.

The DECEMBER number contains, in addition to other articles, notes, &c.,

"MONKEYNUTS"

by F. R. G. DUCKWORTH, Eton College.

Author of "From a Pedagogue's Sketch Book."

Reviews of a large number of books suitable for Christmas Presents.

Copies of the August number, with Mr. A. C. Benson's article, "ESPRIT DE CORPS," can still be obtained.

FRANCIS HODGSON, 89, Farringdon St., LONDON, E.C.

RALPH, HOLLAND & CO.'S ANNOUNCEMENTS.

THE PSYCHOLOGY OF EDUCATIONAL ADMINISTRATION AND CRITICISM.

A SEQUEL TO THE "HOLMES CIRCULAR."

By F. H. HAYWARD, D.Lit., M.A., B.Sc.

With a Preface by JOHN ADAMS, LL.D., M.A., B.Sc., Professor of Education in the University of London.

Crown 8vo. Cloth gilt. 608 pp. Price 7/6 net. Postage 4d.

From "The Schoolmaster," Nov. 16, 1912:—

"A very brilliant book. Every page of it teems with interest for a teacher, or school manager, or an inspector. . . . We should like to quote, but the whole book is quotable. It may almost be said that no writer on education alive is so full of his subject, and so earnest about it as this one. . . . In all he is brilliant, forcible, suggestive, and in much he is offensive, in quarters where it is almost his duty to be so. With much respect and admiration for it, we rank the book upon a special shelf. No abler exists of the kind."

The Story Thread.

By EDITH KIMPTON, M.A., A.K.C. An introduction to the study of English Literature. Illustrated with 21 line Drawings by PETER CAMPBELL. Crown 8vo, 155 pp., cloth. Price 1s.

A Book of Northern Heroes.

IN PROSE AND IN VERSE. By A. J. DICKS, B.A., B.Sc. A Reading book for the lower and middle forms of Secondary Schools. Crown 8vo, 162 pp., cloth. Price 1s.

A Book of Southern Heroes.

IN PROSE AND IN VERSE. By the same Author and uniform with the above. Crown 8vo, 152 pp., cloth. Price 1s.

Old Ballads of England and Scotland.

Selected and edited, with Introduction, Historical Notes, and Full Glossary, by ROBERT ARMSTRONG, Secondary School, Gateshead. Crown 8vo, 203 pp., cloth. Price 1s.

Inorganic Chemistry.

By S. W. BURNELL, LL.B., B.Sc., Chemistry Master, Walthamstow County Secondary School and Technica Institute, and A. J. DICKS, B.A., B.Sc., Headmaster Walthamstow County Secondary School and Technical Institute. Containing 102 Diagrams and Illustrations. Price 3s. 6d.

British Citizenship, Its Rights and Its Duties.

By FREDK. PEAKER. With a Preface by the late Attorney-General, Sir J. LAWSON WALTON, K.C., M.P. New and Revised Edition. Crown 8vo, cloth, 155 pp. Price 1s. 6d.

The Theory of Music for Students and Teachers.

By J. LIGHTFOOT, M.A., D.Sc., Mus.Bac. Containing Staff Notation and Tonic Sol-fa. Crown 8vo, cloth, 295 pp. Price 2s. net.

French Composition.

By F. GUILLOTEL and H. PROIX. Comprising "The Grammar of French Composition" and "English for Translation into French." With a Vocabulary. Price 2s. 6d. net.

Home Readings in English Prose for Translation into French.

With an English-French Vocabulary. By F. GUILLOTEL and H. PROIX. Being Part II of "French Composition" (see above). Price 1s. 3d. net.

The Translation of French Unseens.

By EUGENE FERROT, B.-ès-L. Crown 8vo, cloth, 187 pp. Price 2s. net.

London: RALPH, HOLLAND & CO., 35 & 36, Temple Chambers, E.C.

TEACHING GEOGRAPHY ON SCIENTIFIC LINES.

The New Geography Atlases.

(MAP EXERCISES.)

The teaching of Geography during the last ten years has undergone a complete revolution. Geography is no longer regarded as a conglomeration of unrelated names and places, or of facts and statistics, but as a science which shows us how physical laws affect climate, and how climate and soil account for vegetable and animal life, and how these in their turn determine the position of our cities and towns, or briefly—as they affect human life—how environment shapes and determines the destiny of the races of mankind. The object of this book is to enable this idea to be carried out in Schools.

For this purpose, the most important countries begin with a nameless Relief Map. From this and his Geography book or manual the pupil can make a physical map of the country.

With a knowledge of the Physical conditions and of the climate he can proceed to determine a map of the products of the country (natural and manufactured). These determine the position of towns and cities; another means of communication.

Other Maps can be used for Isobars, Isotherms, Rainfall, Vegetation, Density of Population, &c. Some of these could be graphically shown on the squared paper appended to the map of the country. More especially should this be done with exports and imports, the height of mountains, and the Growth and Density of Population, &c., &c.

THE WORLD, 4½d. net; AMERICA, 4½d. net; BRITISH COLONIES, 4½d. net.

OXFORD LOCAL EXAMINATION.

THE WORLD, 4½d. net. Containing 51 Maps, with 8 pages of squared paper.

AMERICA, 4½d. net. Containing 4 Relief Maps, 31 Blank Maps, with 12 pages of squared paper.

BRITISH COLONIES, 4½d. net. Containing 4 Relief Maps, 27 Blank Maps, with 12 pages of squared paper.

BRITISH ISLES, 3d. net. Containing 11 Maps and 23 sheets of blank paper.

EUROPE, 3d. net. Containing 13 Maps and 30 sheets of blank paper.

London: JOHN MARSHALL & CO., 42, Paternoster Row.

Glasgow: THE GRANT EDUCATIONAL COMPANY, Ltd., 91 & 93, Union St.

FROM

PITMAN'S LATEST LIST

FRENCH PHRASES FOR ADVANCED STUDENTS.

By EDWARD J. KEALEY, B.A. Crown 8vo, 140 pages, cloth, 1s. 6d. net. Containing nearly 3,000 idiomatic phrases and 40 pages of vocabularies.

FRENCH PROSE WRITERS OF THE NINETEENTH CENTURY AND AFTER.

An Advanced French Reader. With Biographical and Critical Notices in French, and Literary and Bibliographical Notes in English. By VICTOR LEULIETTE, B.ès L., A.K.C. Crown 8vo, cloth gilt, 350 pages, 3s. net.

SIMPLE LESSONS IN COLOUR.

By HERBERT A. RANKIN, Art Master, Silver and Bronze Medallist. Demy 8vo, cloth, 112 pages, with 36 full-page Coloured Plates. 4s. net.

PASTEL WORK, or Colour with Crayon.

By H. A. RANKIN. In demy 8vo, cloth, about 160 pages, with 32 full-page Colour Plates, 4s. net.

EUROPA'S CHILDHOOD AND GROWTH.

An Historical Geography of Europe. By A. J. BERRY, M.A. (Oxon.), Director of Education, Preston. With over 100 Illustrations. 281 pages, 2s. Written on an entirely original plan.

PITMAN'S INDUSTRIAL AND SOCIAL HISTORY.

By GEORGE COLLAR, B.A., B.Sc. (Lond.). In crown 8vo, cloth, with over 100 Illustrations, 284 pages, 2s.

PITMAN'S COMPLETE MERCANTILE ARITHMETIC.

With Elementary Mensuration. By H. P. GREEN, Head Arithmetic Master, Pitman's School. Crown 8vo, cloth gilt, with Key, 646 pages, 4s. 6d. net. Complete book without Key, 600 pages, 4s. net. Key separately, 1s. net. Also in Three parts:— Part I, 300 pages, 2s. 6d. net. Part II, 203 pages, 1s. 6d. net. Part III, 100 pages, 1s. net.

London: SIR ISAAC PITMAN & SONS, LTD., 1, Amen Corner, E.C.

Mr. EDWARD ARNOLO'S NEW BOOKS

Electricity and Magnetism. By C. E. ASHFORD, M.A., Headmaster of the Royal Naval College, Dartmouth. 3s. 6d.

Guardian.—"A thoroughly sound text-book. It is suitable to every grade of student from the beginner to the candidate for a University Scholarship."

Inorganic Chemistry for Schools. Covering the Syllabus of the London Matriculation Examination. By W. M. HOORON, M.A., M.Sc., Chief Chemistry Master at Repton School. 3s. 6d.

Journal of Education.—"The author has produced an excellent text-book, in which is embodied the experience of many years; it is admirably suitable for the Upper Forms of Secondary Schools. The style is clear and lucid, and the diagrams are excellent."

NEW AND REVISED EDITION.

The Elements of Inorganic Chemistry. For use in Schools and Colleges. By W. A. SHENSTONE, F.R.S. Revised and partly rewritten by R. G. DURRANT, M.A., Assistant Master at Marlborough College. 5s.

An Introduction to Practical Physics: For Colleges and Schools. By E. H. BARTON, D.Sc., F.R.S.E., Professor of Experimental Physics, University College, Nottingham; and T. P. BLACK, M.Sc., Ph.D. 55 Figures. 3s. 6d.

Educational Times.—"A very useful laboratory companion, that can be recommended to students working for examinations of Intermediate Degree Standard."

Exercises in Chemical Calculation. By H. F. COWARD, D.Sc., Chief Lecturer in Chemistry, Municipal School of Technology, Manchester; and W. H. PERKINS, M.Sc., Assistant Lecturer in Chemistry, University of Leeds. 2s. 6d. net.

Chemical News.—"Candidates for examination should find this book very useful."

Outlines of Inorganic Chemistry. With Special Reference to its Historical Development. By E. B. LUDLAM, D.Sc., F.C.S., Head of the Chemical Department, Clifton College. With an Introductory Note by Prof. Sir W. RAMSAY, K.C.B., F.R.S. 4s. 6d.

Westminster Gazette.—"Under the supervision of a skilled teacher, the course laid down by Dr. Ludlam seems to us to be admirable."

The Storied Past. Illustrated. 1s. 6d. This book, which is designed as a Literary Reader for Junior Forms, consists entirely of selected passages from English literature illustrative of historical events or of the life and customs of bygone days.

Education Office Gazette.—"Well-chosen literary passages illustrative of English history. Uniform in its get-up with *The Greenwood Tree*, *Chips from a Bookshelf*, etc., and like them finely illustrated."

The Tree of Empire. A reading book for middle forms. 256 pages. Illustrated. 1s. 6d. Uniform with *In Golden Realms*, etc.

Secondary School Journal.—"This is one of the best readers it has been our fortune to handle; the unnamed compiler deserves the highest praise for his catholic taste, and whole-hearted patriotism."

Selected Essays from English Literature. Edited, with Introduction and Brief Notes, by ELIZABETH LEE. 2s. The Essayists drawn upon include: Bacon, Cowley, Steele, Addison, Fielding, Johnson, Goldsmith, Lamb, Hazlitt, De Quincey, Leigh Hunt, Mitford, Thackeray, and Carlyle.

Athenaeum.—"A well-chosen volume; we commend the inclusion of Leigh Hunt, and the choice of personal revelation rather than criticism and dissertation."

The Poets' Realm. An Anthology of Verse for Schools. Edited by H. B. BROWNE, M.A., Assistant Master at Hymers College, Hull. 224 pages. 1s. 6d.

Educational News.—"For the selection of pieces we can only have the highest praise."

Arnold's Shilling English Composition. By E. J. KENNY. Cloth, 1s.

School World.—"A compact, well-arranged book, which should prove very useful."

Exercises in Composition. By E. J. KENNY, Author of *Arnold's Shilling English Composition*. In Three Parts. Manila paper covers. 4d. each.

Athenaeum.—"These little books contain nothing unnecessary, but consist of well-graded exercises of almost every conceivable type, and may be confidently recommended."

PLEASE WRITE FOR PROSPECTUSES.

LONDON: EDWARD ARNOLD, 41 & 43, MADDOX ST., W.

To face first matter.

TEXT-BOOKS SUITABLE FOR JUNIOR AND MIDDLE FORMS

MATHEMATICS AND SCIENCE.

ARITHMETIC, THE JUNIOR. Being an adaptation of *The Tutorial Arithmetic* suitable for Junior Classes. By R. H. CHOPE, B.A. (With or without answers.) *Second Edition.* 2s. 6d.

"The book has our fullest appreciation."—*Schoolmaster.*

CHEMISTRY, JUNIOR. By R. H. ADIE, M.A., B.Sc., Lecturer in Chemistry, St. John's College, Cambridge. *Second Edition.* 2s. 6d.

"The results of fifteen years' experience of a thoughtful teacher are always valuable, and, as one might have anticipated, the book offers a thoroughly sound course of practical instruction."—*Nature.*

CHEMISTRY, JUNIOR PRACTICAL. By H. W. BAUSOR, M.A. 1s.

HEAT, JUNIOR. By J. SATTERLY, D.Sc., M.A. 2s.

An elementary course of Heat based largely on experiments. "A good practical course. The diagrams are very clear, and the subject-matter all that could be desired."—*Schoolmaster.*

MAGNETISM AND ELECTRICITY, JUNIOR. By R. H. JUDE, D.Sc., M.A., and J. SATTERLY, D.Sc., M.A. 2s. 6d.

"A capital book for the beginner."—*Journal of the Assistant Masters' Association.*

SCIENCE, JUNIOR EXPERIMENTAL. By W. M. HOORON, M.A., M.Sc., F.I.C., Chemistry Master at Repton School. 2s. 6d.

An Introductory Practical Course of Physics and Chemistry. "An excellent and workable two years' course in Experimental Physics and Chemistry."—*Educational News.*

LANGUAGES, HISTORY, AND GEOGRAPHY.

ENGLISH COMPOSITION, JUNIOR COURSE OF. By E. W. EDMUNDS, M.A., B.Sc. 1s. 6d.

"A thoroughly practical work."—*Schoolmistress.*

ENGLISH GRAMMAR WITH PARSING AND ANALYSIS, JUNIOR. By A. M. WALMSLEY, M.A. 1s. 6d.

This book seeks to reproduce the best methods of language teaching. "The work of a teacher who knows the value of compromise between the new and the old methods."—*Journal of the Assistant Masters' Association.*

FRENCH COURSE, NEW JUNIOR. By G. A. ROBERTS, M.A. 2s. 6d. [December, 1912.]

This course combines the "direct" and "formal" methods. The reading lesson is the basis of the teaching, and each lesson contains grammar and a *questionnaire* for oral practice.

FRENCH READER, NEW JUNIOR.

By J. P. R. MARICHAL, L. ès L., and L. J. GARDINER, M.A. 2s.

"Well-selected extracts in prose and poetry."—*Schoolmaster.*

LATIN COURSE, NEW JUNIOR. By J. V. THOMPSON, M.A., and LL. M. PENN, M.A. 3s. 6d.

In this book accidence and syntax are correlated from the beginning, and the reading of continuous passages of Latin is made the basis of the teaching in each Lesson. There are oral exercises on each passage.

LATIN READER, NEW JUNIOR. By A. J. TATE, M.A. 2s.

Intended either for general use or as a supplement to the *New Junior Latin Course*. "Snippets" are avoided; there is an oral exercise on each extract, and notes are supplied on subject-matter. There is also a full alphabetical vocabulary.

"The volume is particularly reliable."—*London Teacher.*

Copies of Keys supplied only to Teachers.

University Tutorial Press, Ltd.,
25, HIGH STREET, NEW OXFORD STREET,
LONDON, W.C.

A Manual of Great Importance.

EDUCATIONAL HANDWORK

A Complete and Varied Course for Schools.

By WILLIAM TAYLOR,

Instructor to the Lindsey Handicraft Classes for Teachers, &c.
With an Introductory Letter by Mr. WALTER BIRKETT,
Inspector of Schools to the Lindsey County Council
Education Committee.

Book I. FOR JUNIORS.—176 pages, fcap. 4to, with 40 Photo
Illustrations and 182 Working Diagrams. Cloth, 3s. 6d. net.

Book II. FOR SENIORS.—312 pages, fcap. 4to, with 69
Photo Illustrations and nearly 300 Working Diagrams.
Cloth, 5s. net.

Schoolcraft says: "At a time such as the present, when all forms of hand-
work are receiving considerable attention, a book such as that
prepared by Mr. Taylor is extremely welcome. The schemes are
excellently arranged and progressive in character. A good book
at a small cost."

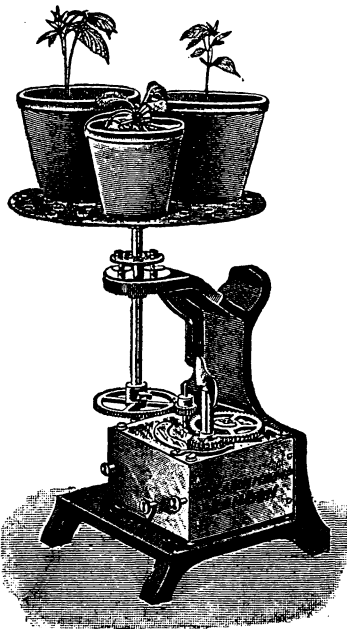
Education says: "Much trouble has been taken to make the manual of
real service, the diagrams being clear, and the directions simple
and direct. It is by self-denying pioneer work such as the writer
of this valuable book sets out that a step forward is definitely
achieved. We cordially recommend the book."

Educational Handwork says: "The whole work from cover to cover is
well got up and well illustrated and much time and labour has
been spent in the preparation and publication of the books."

*Full particulars and specimen pages of both books may be had
post free on application.*

London: A. BROWN & SONS, LTD.,
5 Farringdon Avenue, E.C.

Laboratory Klinostat



With very powerful
one-speed clockwork
movement, giving
about one revolution
per 15 to 20 minutes,
diameter of rotating
disc 24 cms., weight
without flower pot
22 lbs., for vertical,
horizontal and inclined
observations, complete
with 4 hooks.

As List No. V 5669.

Price
£5 5 0

*Extract from our
Botany and Plant
Physiology List No. 61,
a copy of which will
be sent on application.*

A. GALLENKAMP & CO., Ltd.,
19 & 21, Sun Street, Finsbury Square, London, E.C.

To see last matter.

TEACHERS OF GEOGRAPHY

Should write for Specimens and Particulars of
LATEST PUBLICATIONS.

OROGRAPHICAL WALL MAPS.

Land contours in shades of brown and green, ocean depths in
varying shades of blue. **15 in Series.** Size 50 by 42 inches.
On rollers or folded. **12s.** each.

OROGRAPHICAL ATLASES.

THE SHILLING OROGRAPHICAL ATLAS.—New
Edition with new colouring. Clear and distinct. **32 Full-
page Maps.** Size 9½ by 7¼ inches. With **Index giving
Latitude and Longitude** of upwards of 6,000 names of
places. Price **1s.**

THE SIXPENNY OROGRAPHICAL ATLAS.
Same Maps as in above, with strong manilla paper covers.
Without Index to names.

HISTORY MAPS.

Size 40 by 30, on Rollers, 5s. each net.

16 Maps, comprising all essential Geographical details relating to
British and European History.

HISTORICAL ATLAS.

New Edition. Price 1s. 6d. net.

GEOGRAPHICAL EXERCISE BOOKS.

5 in the Series. 2d., 3d., 4d. Each contains a large
number of Outline Maps and pages of Squared Paper on which
the pupils can show by Coloured Drawings Relief, Rainfall,
Production, &c., and Graph Records of Rainfall, Temperature,
Contours and Sections, &c.

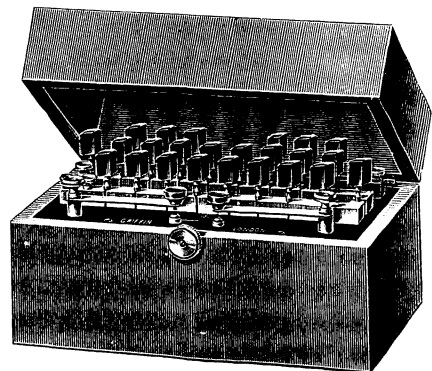
W. & A. K. JOHNSTON, Ltd.,
6, Paternoster Buildings, London, E.C.
And at Edinburgh.

JOHN J. GRIFFIN & SONS, LTD.

Makers of Physical Apparatus.

SET OF RESISTANCE COILS AND WHEATSTONE'S BRIDGE

Post Office Pattern.



**Well annealed manganin coils,
Artificially aged and accurately adjusted.**

Price £6 0 0

Made by:—

J. J. GRIFFIN & SONS, Ltd.,
Kemble Street, KINGSWAY, LONDON, W.C.

MACMILLAN & CO.'S LATEST LIST.

Macmillan's Sevenpenny Series. New Vols.

The Passionate Elopement.

Aunt Rachel.

By COMPTON MACKENZIE.
By D. CHRISTIE MURRAY.

Greifenstein.

Jimbo.

Not Wisely but too Well.

By F. MARION CRAWFORD.

By ALGERNON BLACKWOOD.

By RHODA BROUGHTON.

*** Complete List Post Free on application.

ENGLISH.

MODERN ENGLISH GRAMMAR, WITH CHAPTERS ON IDIOM AND CONSTRUCTION. Being Parts I. and II. of "English Grammar, Past and Present," with Seven Appendixes on Prosody, Figures of Rhetoric and other outlying subjects. By J. C. NESFIELD, M.A. 2s. Key, 2s. 6d. net.

DIACONUS: EXERCISES IN THE MEANING OF ENGLISH. By GEORGE G. LOANE, M.A. 3s. 6d.

A.M.A. CIRCULAR.—"Teachers of English generally, and those preparing candidates for matriculation in particular, will welcome this book. More than thirty standard poets have been laid under contribution, and 162 characteristic extracts taken from their works; these are graded in order of difficulty."

ENGLISH LITERATURE FOR SECONDARY SCHOOLS.—New Vols.

TANGLEWOOD TALES. By NATHANIEL HAWTHORNE. Edited for Schools by J. H. FOWLER, M.A. Part I.—The Minotaur, The Pygmies, The Dragon's Teeth. Part II.—Circe's Palace, The Pomegranate Seeds, The Golden Fleece. 1s. each part.

THE TUDOR SHAKESPEARE.—New Vols.

SHAKESPEARE. Othello. Edited by THOMAS M. PARROTT, Ph.D., Professor of English in Princeton University. With Frontispiece. 1s. net.

SHAKESPEARE. Twelfth Night. Edited by WALTER M. HART, Ph.D. With Frontispiece. 1s. net.

GEOGRAPHY.

A FIRST BOOK OF GENERAL GEOGRAPHY. By B. C. WALLIS, B.Sc. (Lond.), F.R.G.S. Fully Illustrated. 1s. 6d. [*First Books of Science.*]

A.M.A. CIRCULAR.—"An excellent book on up-to-date lines."

EDUCATION.

VOLUME III. JUST PUBLISHED.

A CYCLOPEDIA OF EDUCATION. Edited by PAUL MONROE, Ph.D., Professor of the History of Education, Teachers' College, Columbia University. Volume III. GAI-LIB. Imperial 8vo. 21s. net.

*** Previously published:—Vol. I. A-CHU. 21s. net. Vol. II. CHU-FUS. 21s. net.

PETER RAMUS AND THE EDUCATIONAL REFORMATION OF THE SIXTEENTH CENTURY. By F. P. GRAVES, Ph.D. 5s. 6d. net.

TEACHING IN SCHOOL AND COLLEGE. By W. L. PHELPS, M.A. 4s. 6d. net.

MATHEMATICS AND SCIENCE.

PART I. AND PARTS II. AND III. JUST PUBLISHED.

A NEW ALGEBRA. By S. BARNARD, M.A., and J. M. CHILD, B.A., B.Sc. With and Without Answers. Part I. 1s. 6d. Parts II. and III. 1s. 6d.

PART I. AND PARTS I. AND II. JUST PUBLISHED.

A NEW GEOMETRY. By S. BARNARD, M.A., and J. M. CHILD, B.A., B.Sc. PART I. Equivalent to Euclid, Book I. 1s. 6d. PARTS I. and II., being new edition of "New Geometry for Junior Forms." 2s. 6d.

SECOND EDITION. NOW READY.

AN ELEMENTARY TREATISE ON COORDINATE GEOMETRY OF THREE DIMENSIONS. By ROBERT J. T. BELL, M.A., D.Sc., Lecturer in Mathematics in the University of Glasgow. Second Edition. 10s. net.

SECOND EDITION. JUST PUBLISHED.

THEORETICAL AND PRACTICAL MECHANICS AND PHYSICS. A Preliminary Science Course for Artisans in Evening Schools. By A. H. MACKENZIE, M.A., B.Sc., A.R.C.Sc., and A. FORSTER, B.Sc. Second Edition. 1s. 6d.

THIRD EDITION. COMPLETELY REVISED AND ENLARGED.

MIXED METALS OR METALLIC ALLOYS. By ARTHUR H. HIORNS, Head of Metallurgical Department, Birmingham Municipal Technical School. Third Edition. Completely Revised and Enlarged. 6s.

MACMILLAN & CO., Ltd., ST. MARTIN'S STREET, LONDON, W.C.

Issued on the 1st and 15th of each month.

Price 1d.

Yearly Subscription, post free, 2s. 6d.

The University Correspondent

AN EDUCATIONAL JOURNAL DEVOTED MAINLY TO UNIVERSITY MATTERS.

LEADING FEATURES:

University and other Educational News and Notes. Articles of Educational Interest. Science Notes and Articles on the Progress of Science. Notice of, and Articles on, Special Subjects for London University Examinations. A Course of Preparation for London Matriculation. Matters of Interest connected with London University, e.g., Matriculation Papers, Changes in Regulations. London University Graduation Lists. Answers to Correspondents on University Matters. Notices of Vacant School Posts.

A Specimen Copy of the current issue will be sent *Post Free* on application.

Published by W. B. CLIVE, 25, HIGH STREET, NEW OXFORD STREET, W.C.

MACMILLAN & CO.'S NEW BOOKS.

FRENCH AND GERMAN.

A PRIMARY GERMAN COURSE. Comprising Object Lessons, a First Reader, Grammar and Exercises, with some remarks on German Pronunciation and the relation between German and English and Full Vocabularies. By OTTO SIEMMANN, Head of the Modern Language Department at Clifton College. Illustrated by H. M. BROCK. 3s 6d.

A.M.A. CIRCULAR.—"This book will do much to popularise the teaching of German in the lower forms of our schools; it is certain to prove an immediate success."

FIRST BOOK IN GERMAN. By E. W. BAGSTER-COLLINS. 6s.

CONTINENTS, CITÉS, HOMMES. A New French Reading Book and Aid to French Composition for Higher Forms in Schools and Candidates for Public Examinations. By CHARLES COPLAND PERRY, M.A., Dr. Phil. Lic. ès L. Paris, and ANDRÉ TURQUET, Licencié ès Lettres et Licencié ès Langues Vivantes (Paris). 2s.

THE ATHENEUM.—"The subjects chosen for description in this new French Reader are of general interest, and the compilers are to be congratulated on their pleasing style, as well as on the excellent short notes following each chapter."

MACMILLAN & CO., LTD., ST. MARTIN'S STREET, LONDON, W.C.

Scotland.

How to reach the Teaching Profession.

The only medium for Announcements intended to reach the entire Teaching Profession throughout Scotland is the Scotch Teachers' Official Organ, the

"Educational News."

The "News" deals with both Primary and Secondary Education, and is read by every Teacher of any moment throughout Scotland.

Particulars may be had on application to Mr. Robert C. Evans, 34, North Bridge Street, Edinburgh, or Byron House, 85, Fleet Street, London, E.C. (Tel.: 5504 Holborn.)

THE
Educational News

The SCHOOL WORLD.

There is no better medium than the SCHOOL WORLD for advertisements of

**POSTS VACANT AND REQUIRED,
BOOKS, SCIENTIFIC APPARATUS,
SCHOOL FURNITURE AND
EQUIPMENT.**

The Charges for Space are as under:

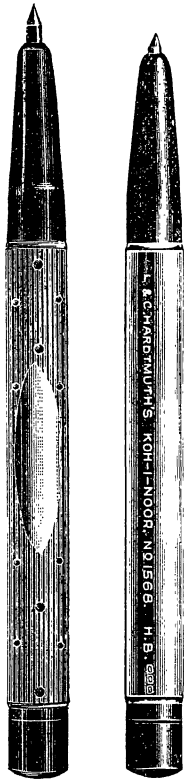
Page	...	...	...	...	£5 10 0
Half Page, or Column	...	...	...	...	2 17 6
Quarter Page, or Half Column	...	...	...	...	1 10 0
One-Eighth Page, or Quarter Column	...	...	...	...	0 17 6
Small Announcements,					
	per line of 9 words				0 0 9

Terms for Series of Insertions on Application.

** Replies to small educational advertisements can be addressed to the Advertisement Department of "The School World" under a Box Number or *Nom de Plume*. No charge is made for forwarding the same.

The SCHOOL WORLD is published on the first day of each month. Advertisements should reach the Advertisement Department of the Magazine by, AT LATEST, THE 22nd OF THE MONTH PRIOR.

MACMILLAN & CO., Ltd.,
ST. MARTIN'S STREET, LONDON, W.C.



Why not make them
a feature of your
Christmas Giving ?

'KOH-I-NOOR'
Propelling Pencils

"Koh-i-noor" Propelling Pencils are produced in so many styles that all tastes can be suited. You can get a "Koh-i-noor" with refills at the end, or with a sharpener at the end. You can get one in plain silver at 2s. 6d., in chased silver at 3s., in rolled gold at 5s., or in plain 9-ct. gold at 15s., fitted with the inimitable "Koh-i-noor" lead of course. Your stationer or jeweller will gladly show you the series.

From 9d. upwards.

List free from L. & C. HARDTMUTH, Ltd., Koh-i-noor House, Kingsway, London. (Paris, Vienna, Milan, Dresden, Brussels, Barcelona, Zurich, New York.)

LANTERN SLIDES

Season 1912-13.

Our new and enlarged Catalogue E/12 (136 pages) is now ready.

It covers almost the entire range of Natural History subjects and will repay the careful perusal of Lecturers and Teachers.

Post free to readers mentioning "School World."

FLATTERS & GARNETT, Ltd.,
32, Dover St. (Close to the University), Manchester, S.E.

HARBUTT'S PLASTIGINE

For Modelling in the Art Room, the Class Room, — and for numerous uses in the Laboratory. —

Samples and Copy of
"HARBUTT'S MODELLING MONTHLY" from
HARBUTT'S PLASTIGINE, Ltd., 223, Bathampton, Bath.

PRINTING FOR SCHOOLS

GEORGE OVER

(Printer to Rugby School)

The RUGBY PRESS, RUGBY

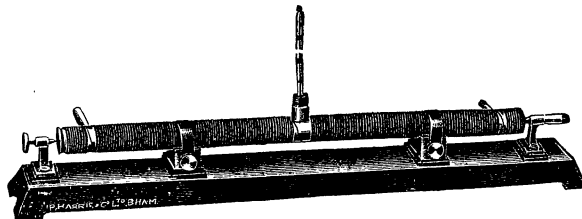
Telegrams: "RUPRESS, RUGBY."

Nat. Tel.: 90 Rugby.

SCIENTIFIC INSTRUMENTS

COEFFICIENT OF LINEAR EXPANSION APPARATUS, No. 8542.

SPECIALLY
DESIGNED.



THOROUGHLY
RELIABLE.

Specification.

Apparatus to determine the Coefficient of linear Expansion of Metals by observing the elongation produced by a given rise of temperature in a bar of known length. Comprising metal rods, 50 cms. long with conical ends, surrounded by jacket covered with non-conducting material, with steam inlet and outlet tubes and centre tube for thermometer. Fitted on iron stand, with adjusting screw and micrometer, reading to 0.01 mm.

PRICE, complete with 3 metal rods £1 : 0 : 0

Catalogues free upon application.

PHILIP HARRIS & CO., LTD., BIRMINGHAM.

SCIENTIFIC INSTRUMENT SPECIALISTS.

